REU for Physics

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Your Librarians

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WE ARE HERE TO HELP!
Today’s Class

- Responsible Conduct of Research
  - Avoiding Plagiarism, Data Falsification, Data Fabrication
  - Mentoring
  - Authorship
- Web of Science
- RefWorks

http://guides.uflib.ufl.edu/REUPhysics
Good research is ethical research

- Learn to use equipment properly
- Carefully record your work
- Ask questions!
- Share and do not withhold your research results
- Respect all research group members
- Acknowledge limitations
- Don’t ignore acts of suspected research misconduct

Adapted from http://www.webguru.neu.edu/professionalism/integrity/what-does-research-integrity-require-you
integrity, ethics, dual use technology, data management, human/animal subjects, research, data fabrication, mentoring, ethics, collaboration, research misconduct, plagiarism, conflict of interest, peer review, e-science, authorship, fabrication of data, data falsification.
Research Misconduct

- Plagiarism
- Data Fabrication
- Data Falsification
What is plagiarism?

- **Plagiarism** is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.
- There are 5 types of plagiarism.
Stealing

- If you take a sentence, or even a unique turn of phrase, and pass it off as your own, this is stealing.

How can we avoid it?
Patchwriting

- Using words and phrases from a source text (that may or may not be acknowledged), and patching them together into new sentences.

How can we avoid it?
Insufficient Paraphrasing

- Taking an author's words and changing them slightly, without quoting the actual text is plagiarism.

How can we avoid it?
Misquoting

- changing or misrepresenting another's words
- When you quote another author in your own work, always be sure to quote exactly what was said.

How can we avoid it?
Self Plagiarism

- Reusing a paper multiple times for multiple assignments without significant revisions/a change in intellectual focus
- Duplication of publication
- You can not reuse/recycle your own paper for use in another context without explicit permission

How can we avoid it?
Data Fabrication

- Fabrication is making up data or results
Data Falsification

- **Falsification** is manipulating research materials, equipment, or processes, or changing or omitting data or results.
Examples in Physics

- [http://retractionwatch.wordpress.com/?s=physics](http://retractionwatch.wordpress.com/?s=physics)
“Game on!”

http://uflib.ufl.edu/games
Mentoring

- Expectations, communication and being honest with yourself...
Selecting an advisor/mentor

- What are my objectives?
- What type of training do I desire?
- What are my strengths?
- What skills do I need to develop?
- What kinds of research/projects will engage me?
- How much independent vs team work do I want?
- What type of career do I want to pursue?

Selecting an advisor/mentor

- What is the advisor’s educational background?
- Does the advisor have tenure?
- What is the advisor’s reputation?
- What is the advisor’s communication style?
- How often will you meet with your advisor?
- What is the advisor’s publication record with undergrad students?
- Does the advisor take undergrads to meetings to present their work?
Look before you leap!

- What are the program’s expectations of you?
- What is the program’s past record in working with undergraduates?
- Within the program, what is the process for selecting your research, and research advisor?
- Who are the current members in the research group?
- Can you see yourself working with them?
Ethics of Authorship

- Variation of authorship practices across disciplines
- Authorship vs acknowledgement
Transparency

- Who funded the research or the publication process?
- Who did the work? Who merits authorship?
- Which non-authors merit acknowledgement?
- Is the work original?
  - Has the research been published before?
  - Are primary data sources identified?
Authorship

- Understand the meaning of authorship roles in your discipline
  - PI, postdoc, faculty, grad student, research assistant, undergrad student
- Create a clear policy before the start of a project.
Authorship defined

According to the ICMJE, authorship should be based on:

1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
2) drafting the article or revising it critically for important intellectual content; and
3) final approval of the version to be published.

*Authors should meet all 3 conditions

Authors need to take responsibility for what is written.
Acknowledgement defined

Defined as “supportive functions”
- advising about the statistical analysis
- collecting or entering the data
- modifying or structuring a computer program
- conducting routine observations or diagnoses for use in studies

APA manual, p. 18
Authorship in Physics

- Normal in Physics to have a large number of co-authors

- Example: [http://authors.library.caltech.edu/37662/1/PhysRevLett.110.081803.pdf](http://authors.library.caltech.edu/37662/1/PhysRevLett.110.081803.pdf)
Case Study
Further info:

- RCR Research Guide

References: NSF; ORI, IACUC, NIH, WoS, Retraction Watch
- Slides adapted from Michelle Leonard, 2012
Web of Science
RefWorks