Responsible Conduct of Research
Refresher Course
Syllabus
January 9 and 10, 2020, 9-5 pm

https://www.colorado.edu/lab/allen/rcr/rcr-refresher/rcr-refresher-syllabus

This refresher class is to fulfill NIH requirements if you have already completed a full RCR course at any point. We will cover all topics required for NIH RCR training. Furthermore, this course will reach beyond typical RCR classes, examining what is taught about RCR and how we can improve RCR education.

Topics we will cover:

a. conflict of interest – personal, professional, and financial
b. policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practices
c. mentor/mentee responsibilities and relationships
d. collaborative research including collaborations with industry
e. peer review
f. data acquisition and laboratory tools; management, sharing and ownership
g. research misconduct and policies for handling misconduct
h. responsible authorship and publication
i. the scientist as a responsible member of society, contemporary ethical issues in bio
j. medical research, and the environmental and societal impacts of scientific research

Before 1/9 start of class, Watch/Read:

1. Read: Conflict of Interest article
2. Read: Reproducibility Crisis? Or Fake data?
3. Read: Even in our own backyard.
4. Watch: What Constitutes Authorship?
5. Watch: Peer Review in 3 Minutes (Links to an external site.)
6. Watch: Science in service to the public good
7. Watch: Introduction to Experimental Design
8. Watch: Experimental Design Module 1a: Replication

In Class Schedule

January 9, 2020 9am – 5pm (Lunch break, 12-1 pm)

Morning RCR Topics

1. Quiz over reading
2. What is responsible conduct of research?
    1. data acquisition
    2. laboratory tools
    3. data management
3. Topics RCR could cover

    A. Topics required by NIH:
    - a. conflict of interest – personal, professional, and financial
    - b. policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practices
    - c. mentor/mentee responsibilities and relationships
    - d. collaborative research including collaborations with industry
    - e. peer review
    - f. data acquisition and laboratory tools; management, sharing and ownership
    - g. research misconduct and policies for handling misconduct
    - h. responsible authorship and publication
    - i. the scientist as a responsible member of society, contemporary ethical issues in biomedical research, and the environmental and societal impacts of scientific research

    B. Ideas
    - a. What is a responsible researcher?
    - b. What are signs of a responsible researcher?
    - c. How do you do good research?
    - d. Can we draw a diagram that covers the topics?
    - e. Is peer review done in the best way possible?
    - f. How should science handle conflicts of interest?
    - g. What is the best way to avoid authorship conflicts?
    - h. Are there enough safeguards for students and post-docs or do mentors have too much power?
    - i. What is the best way to train students to collect data and back-up data?
    - j. Whose job is it to train them to do things like controls?
    - k. How do you know when your internal bias is fooling you?
    - l. What makes a responsible researcher?

Afternoon: People skills

How to have a difficult conversation (i.e. Cringe moments booklet)

1. Practical Matters: Dealing with Difficult Conversations
    - a. mentor/mentee responsibilities and relationships
    - b. responsible peer review
    - c. collaborative research including collaborations with industry
    - d. responsible authorship and publication

2. Case studies and the best way to teach them

a. Potential methods
   read to group and instructor asks questions
   read to group, no instructor, open discussion
   watch a video, discuss role play
b. Pros and cons of methods
c. Optimal size of small groups

3. Group presentations

January 10, 9am – 5pm (Lunch break, 12-1 pm)

Morning: Work on assignments
Assignments due before 5 pm on Jan 10th (more instructions will be given in class)
First create a folder in the google drive under homework with YOURNAME!!!

Assignment 1: One page (double spaced) letter to graduate students of RCR on one of the following topics:

What is a responsible researcher?
What are signs of a responsible researcher?
How do you do good research?
What should RCR teach?
Is peer review done in the best way possible?
How should science handle conflicts of interest?
What is the best way to avoid authorship conflicts?
Are there enough safe guards for students and post-docs or do mentors have too much power?
What is the best way to train students to collect data and back up data? Whose job is it to train them to do things like controls?
How do you know when your internal bias is fooling you? What makes a responsible researcher?
*Any other question can be used if approved by instructor (Enter a new topic at the "assignement 1" tab to get approval from instructor. alternate topic must be entered by 5 pm.)

Assignment 2: Answer 3 FAQs from any of the pages I gave out. Direct the answers to graduate students.

Assignment 3: Group or individual project—a grey zone case study written in at least 2 formats (Methods talked about on day 1). For instance you could write the case study as both a role play and a question/answer discussion group.

A. Potential methods (for more method ideas go to the class directory and opern the file extra_methods.pdf)
   1. read to group and instructor asks questions
   2. watch a video, discuss
   3. role play

Afternoon: Discussion

a. Discuss Assignments and edit.
b. What should be in a lab manual/ lab guide for new personal?
    1. See examples
    2. Make a guide
c. Red Tape brigade
    1. research misconduct and policies for handling misconduct
    2. conflict of interest – personal, professional, and financial
    3. policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practice
    4. Data sharing and ownership
    5. The scientist as a responsible member of society, contemporary ethical issues in biomedical research, and the environmental and societal impacts of scientific research

Links to:
A Brief Protocol for Difficult Conversations
RCR Helpline
RCR Refresher
RCR Refresher Syllabus