

Study Guide for Intensive Format Classes
Responsible Conduct of Research
Med 255

We ask participants in the intensive format class sections to complete the required readings and to fill out this entire study guide before the class meeting. Please bring a hard copy of your completed study guide to class and turn it in to the instructor. There is a separate study guide formatted for the traditional weekly classes available on the course website.

This guide is designed to focus your attention on aspects presented in the readings by posing questions for you to answer as you progress through the readings. The questions are designed for brief answers, so please limit your responses to any one question to no more than 2 sentences.

Please fill in your responses either on the computer or by hand—legibly—as you complete the readings.

The class readings are posted on the course website at:

<http://bioethics.stanford.edu/education/rcr/course readings.html>

Select the readings for each course session. When prompted, log in using the login and password that were included in your welcome e-mail.

There are seven sessions in the course, so the readings and this guide will follow the order of the class sessions.

Name: _____

Date of Intensive Section: _____

Session 1

Authorship and Inventorship

1. Authorship on a publication is justified for those who make the following contributions (choose all that apply):
 - a. Submit the manuscript to the journal and communicate with the editors
 - b. Make substantial contributions to conception and design
 - c. Contribute data or carry out analysis of data
 - d. Write the paper
2. The credit corresponding to the order in which authors are listed is similar for all fields of science. (True/False)
3. In the final analysis, which of the authors is accountable for the data published in a paper?

4. Give two reasons that you might feel pressure or obligation to include an “honorary author” on your manuscript.
5. What was the total amount of the honoraria paid to researcher Gerald Schatten for his role in the studies being carried out by South Korean cloning researcher Woo Suk Hwang? Does this amount seem appropriate to you?
6. What are the risks to you if you permit yourself to be listed as an author on a paper when your contributions may not have justified authorship?
7. When a discovery that may be patentable is made at Stanford, what is the responsibility of the inventor?
8. When patentable discoveries are made at Stanford, are the inventors required to patent them if they would prefer to make them freely available?
9. What Stanford office decides whether or not a patent application will be filed?
10. What happens to income that may be generated by licensing fees?

Session 2

Integrity and Information

1. Editors of scientific journals are charged with maintaining confidentiality of the authors who submit manuscripts. Why is this important? (Indicate all that apply.)
 - a. Authors are vulnerable to being scooped
 - b. Competitors may benefit from pre-publication data
 - c. Additional experiments may be required and thus the paper and its conclusions may change prior to publication
 - d. Authors should be protected from revelations of misconduct
2. You are asked to review a manuscript submitted for publication. You believe that one of your postdocs could make a contribution to the review.
 - a. You give the manuscript to your postdoc and ask him or her to write a draft of the review. You edit the review and submit it.
 - b. You give the manuscript to your postdoc and ask him or her to discuss their opinions. You write the review and submit it.
 - c. You make copies of the manuscript for everyone in your lab and discuss it at lab meeting.
 - d. You contact the journal editor and request permission to share the manuscript with the postdoc. You discuss who will write the review with the editor.

3. You receive a manuscript for review that has an exceptionally good list of citations. You will be writing a grant application soon, so you make a copy of the bibliography but destroy the rest of the paper. Is this acceptable?
4. You are reviewing grant applications for the National Science Foundation. The panel meeting is scheduled for next week. Suddenly you realize that a key appendix seems to be missing from one of the applications. What do you do?
 - a. Contact the PI who submitted the proposal and tell him or her.
 - b. Contact the NSF program officer in charge of the panel about the omission.
 - c. Review the proposal as received and bring up the problem at the panel meeting.
5. You have just returned from a meeting of a grants panel. One of your colleagues had submitted one of the proposals reviewed by the panel, and he asks you for information about the outcome. What do you do?
6. Survey research of early- and mid-career scientists by Martinson and colleagues implies that a wide variety of questionable behaviors are employed by about one-third of their respondents. Behaviors 14-16 were characterized as most likely due to carelessness, rather than resulting from an intention to mislead. Do you agree with this assessment?
7. A larger number of mid-career scientists said that they had engaged in at least one of the questionable behaviors in the previous three years than the early-career scientists. Suggest three reasons for this finding.
8. The paper by Couzin describes a difficult situation that arose at the University of Wisconsin. Do you feel that the administration handled the situation as well as possible, or were there other actions that they should have taken?
9. In a current case at the University of Tokyo, Kazunari Taira has not been able to produce raw data derived from experiments carried out over several years. A research associate in his lab claims that a computer problem erased the missing data. How could this situation have been avoided?
10. The Taira case was raised by other scientists who were unable to replicate the results in 11 papers from the Taira laboratory. The original data have not been found, and the results of the papers have been difficult to replicate. Should those papers be withdrawn?

Session 3

Conflicts of Interest

1. If students or postdoctoral fellows work at outside entities, such as biotechnology companies, can they work on secret or proprietary projects?
2. Can a student's thesis defense be delayed because of intellectual property concerns on the part of a commercial enterprise, assuming that part of the student's research was carried out at the company?
3. A Stanford faculty member is involved in a biotechnology startup that is based on discoveries that she made in her laboratory. Appropriate arrangements have been made for patenting, and a licensing agreement has been negotiated by Stanford and the company. An academic colleague at another institution contacts her and asks for a reagent to pursue research that overlaps with the company plans. What should she do?
4. Ownership of inventions must be disclosed and assigned to Stanford. Who owns copyrightable works, such as books or musical works or educational media that are created by Stanford personnel?
5. Dr. Nancy Olivieri was threatened with legal action by her research sponsor, Apotex, when she wished to report adverse events that occurred during a clinical trial through presentation at a scientific meeting. She had previously signed a confidentiality agreement governing results of an earlier trial. Did she have an obligation to Apotex? Was she irresponsible in proceeding to make the trial results public?
6. What factors may have influenced the University of Toronto to take their initial position in support of Apotex? Did the University have a conflict of interest in this situation?
7. Why has JAMA insisted that industry-sponsored research undergo independent statistical analysis before acceptance?
8. Why do drug companies resist listing their clinical trials on a public registry, such as the World Health Organization's proposed online portal?
9. If an investigator in a clinical trial has a significant financial interest in the company that is sponsoring the trial, to whom should this potential conflict of interest be disclosed?
10. You have been asked to review a manuscript submitted for publication. When it arrives, you see that a researcher who has launched personal attacks on you and on your work for decades is one of the co-authors. What do you do?

1. When the Stanford IRB reviews applications to carry out research studies involving research participants, two major aspects are considered. Please indicate the relevant aspects:
 - a. Statistical review
 - b. Scientific review
 - c. Ethics review
 - d. Medical review
2. What is the relationship between the IRB and the HRPP?
3. Participants in both medical and nonmedical research projects engage in a process called informed consent. Briefly, what is informed consent, and what is its purpose?
4. Why is it important not to promise benefits to study participants?
5. What is the fundamental difference between medical care and medical research with regard to participants? Why might participants frequently confuse the two?
6. How do participants know whether or not they can withdraw from a study?
7. What are three specific strategies for minimizing pain and distress to animal subjects?
8. If a researcher wishes to use vertebrate animals in a research project, what is the institutional component at Stanford that evaluates the request?
9. Both animal testing and in vitro testing to detect chemicals that are toxic to humans often have poor predictive value. How are such tests being validated?
10. What was the Draize test and why has it become infamous?

Session 5

Human Subjects Research

1. What U.S. Public Health Service research project led to passage of the National Research Act in 1974?
2. IRB oversight of research in the U. S. is mandated by: (indicate all that apply)
 - a. FDA regulations
 - b. The “Common Rule”
 - c. The Department of Health and Human Services
3. Investigators can determine whether or not their projects are exempt from Federal regulations governing human subjects research. (True or False)

4. In the case *Grimes v. Kennedy Krieger*, the Maryland Court of Appeals limited the rights of parents in a research situation. What was that limitation?
5. What might have been one benefit of increased community participation in the design and implementation of the lead abatement study carried out by Kennedy Krieger Institute?
6. Why do children and incompetent adults fall into a special category with regard to participation in research?
7. Who usually gives consent to permit children to participate in genetic research? What if the child objects?
8. Name one reason that genetic research involving children and incompetent adults is approached with a greater degree of caution than other kinds of research.
9. An individual's medical information is generally regarded as private. Yet many research projects use such information and request permission to use it from research participants. Name two ways that researchers can help protect the privacy of those who participate in their projects.
10. Briefly define the concept "bin size."

Session 6

Human Biological Materials

1. In California, do research participants who donate tissue retain ownership of the tissue?
2. If a research participant's tissue sample is key to making a patentable discovery with commercial value, does the participant automatically receive income from the discovery?
3. In the Greenberg case, research participants from families with children affected by Canavan disease donated tissues and recruited a researcher to develop a predictive genetic test for the disorder. Why were they unhappy when the researcher was successful?
4. Members of the Havasupai tribe in Arizona have initiated two lawsuits alleging that their samples, donated to conduct research on diabetes, were then used to investigate other matters, including evolution and schizophrenia, and were sent out to other researchers. What concerns might a tribal group have that go beyond the concerns of an individual research participant?
5. In the Beskow paper, the author provides concrete examples of "best practices" in informed consent for population-based research. Under what circumstances would

- it be appropriate for investigators to require tissue samples as a condition of participation?
6. Sometimes it isn't possible to anticipate innovative experimental approaches that might emerge in the future. Under what circumstances is it permissible for investigators to retain leftover tissues to use for future research?
 7. For broad, exploratory, epidemiological association studies, do you think it is appropriate to offer individual results to participants?
 8. In the context of the Hap Map project, what is the distinction between community consent and community engagement?
 9. The Hap Map project limits the ability of participants to seek patents on data. Briefly, what is the reason for this limitation?
 10. Is the Hap Map project likely to cause racial stigma as it examines DNA from groups of people with their origins in different continents and tribal groups?

Session 7

Societal Responsibility

1. Over the past century, certain groups in the United States have advocated for changes in social policy justified by links between intelligence and genetics. Name two such groups.
2. Beckwith and Huang argue that scientists are reluctant to speak out about misuse of science because they have not been exposed to education about social responsibility. Do you agree that scientists are reluctant? If you agree, does this sound like a reasonable hypothesis? If not, give a current example of an area in which scientists are speaking out.
3. Stokstad outlines reactions to research findings about environmental harms due to salvage logging in his report published in Science. Do you feel it was appropriate for other OSU researchers to comment on the content of the paper?
4. Apparently some of those who commented negatively on the Science paper on salvage logging requested that Science withdraw the paper. Was this request appropriate?
5. The salvage logging controversy led revelations that the Dean of the College of Forestry had collaborated with industry in efforts to discredit the salvage logging paper. Was this appropriate conduct for a scientist? Briefly, why or why not?

6. A critic of the Donato paper has asked for access to both the field site and the data, and Donato's advisor, Beverly Law, has refused. Is such refusal an example of good scientific practices? How do you draw the line between harassment and scientific inquiry?
7. In her comment in Science, Couzin summarizes the achievement of a research group in synthesizing active poliovirus from individual nucleotides. Does this mean that eradication of polio (and cessation of immunization programs) should be put on hold?
8. How is the newly synthesized poliovirus different from the wild type virus?
9. The virus responsible for the 1918 flu pandemic was recently recovered from a victim in Arctic permafrost and sequenced. Do you think that this sequence is likely to represent the same strain that caused the pandemic?
10. What was the probable origin of the 1918 flu virus that was recovered? Does this have implications for current global concerns about bird flu?