Responsible Conduct of Research:

PLAN FOR INSTRUCTION IN RESPONSIBLE CONDUCT OF RESEARCH (RCR):

Overview: In accordance with NIH guidelines (NOT-OD-10-019), the Division of Medical Sciences (DMS) has produced two courses on RCR that must be taken by all students. The first course occurs their second year, and the second in their fifth/sixth year. In 2011, the RCR curriculum was expanded and revised in concert with Harvard's Vice Provost for Research. The course's leader is a member of Harvard's RCR Working Group.

1. Format: The two required courses: Medical Sciences 300qc and Med Sci 302qc each have two components: didactic; and small group interaction with case studies. Med Sci 300qc is the introductory course taken by 2nd year students and Med Sci 302 qc is the advance course taken by upper level students. The courses are case-based; designed to maximize interaction among students and faculty on matters of responsible scientific practice and ethics. Students prepare case materials and readings in advance of each session and then meet to present and discuss these readings. They utilize extensive resource materials, including articles, essays, prepared example cases and mini-cases. Each discussion group is led by a member of the DMS faculty and is composed of 4–10 students purposely mixed from among the Division's programs thereby allowing the students to experience a wide range of views. The Med Sci 302 qc course in addition to lectures and small group activities, permits for the advanced students to share their RCR reflections with the 2nd year students, based on their graduate school experience.

2. Subject Matter: The subject matter for the RCR curriculum is consistent with the guidelines in NOT-OD-10-019. Each student is provided with a 90 page Course Guide containing cases and readings organized thematically around the main topics of the RCR curriculum. Additionally, students are required to read the National Academy of Sciences publication On Being a Scientist (3rd Edition) which also covers this curriculum. At the end of the semester, each student will be required to write a case of their own that will be evaluated by the faculty member. During Med Sci 300qc and Med Sci 302qc, students explore a wide range of topics including rules of the scientific method and practice, the use of animals, human trials, writing and publication issues, relationships with colleagues and mentors, fraud and misconduct, and philosophy of science; issues of science in society, including genetic screening, environmental, political, social, and news media issues; and the interface between the scientific community and society, including patents, conflict of interest, animal rights, whistle-blowing, and regulation of research. Med Sci 302qc is particularly geared to address the specific issues that students have confronted during their training. Each year, the RCR faculty will review the curriculum to ensure that all topics have been represented adequately.

3. Faculty Participation: a. 23 professors taught Med Sci last year. Each faculty member facilitates participation of every student in these sessions. Participation in all sessions is mandatory and students who miss a session are required to make up that session by attending another small group session lead by a different faculty member.

4. Duration of Instruction: G2s take Med Sci 300qc, which is comprised of three 1.25hr lectures and six 1.5hr small group meetings over a period of one semester. G5/6s take Med Sci 302qc, which is comprised of three 1.25hr lectures and three 1.5hr small group meetings over a period of one semester. **Total: 21hrs.**

5. Frequency of Instruction: The two RCR courses encompass the approximately 6 years of graduate training. Since much of RCR deals with aspects relating to research in the laboratory, we feel that the students gain greater benefit from taking the course in their second year. The second RCR course is taken in their fifth/sixth year. It is anticipated that the design of these courses will emphasize the importance placed upon the RCR curriculum, will allow it develop as the students mature scientifically, and will keep it fresh in the minds of the students. I took Med Sci 300qc in the fall of 2014 and I will take Med Sci 302qc in the fall of 2017.

Personal: In addition, in my weekly meetings with my advisor Dr. Peter Kharchenko, we discuss responsible conduct of research including the topics of authorship, ethics, confidentiality, and many more. In addition to documenting all analyses in a digital lab notebook available to the whole lab, I also strive to publish all code to online repositories associated with figures in our published papers.