Syllabus
Research Ethics and Scientific Integrity
Spring 2013 Honors Seminar
HON 407, CRN: 65314
Portland State University

Course Credit: 4 quarter hours

Instructor Information:
Andrea M. Goforth, Ph.D.
Assistant Professor
Department of Chemistry
Portland State University

Email: agoforth@pdx.edu
Office Phone: 503-725-3838
Office Location: Science Building 1, Room 207A
Office Hours: Tuesdays and Thursdays, 2:15-3:15 PM

Class Meeting Information:
Tuesdays and Thursdays, 12:00-1:50 PM
Room 205, XSB

Course Description:
The seminar course will address traditional and modern topics in research ethics and scientific integrity. The course will primarily involve reading, abstracting, peer-editing, and in class discussion around the following major scientific ethics topics: 1) values in science, definitions of scientific ethics and research integrity, 2) peer-review, responsible authorship and publication, and plagiarism, 3) responsible data acquisition and management, 4) research misconduct, error and negligence in science, 5) contemporary ethical issues in biomedical research (stem cells, human and animal subjects, cloning, etc.), 6) impacts of science on society, 7) collaboration and commitment management, mentoring and being mentored, 8) bias in science, and 9) conflicts of interest. Students will participate in daily, open class discussions with the instructor and occasionally, invited, expert guests. Students will write essays, conduct unbiased peer-review, conduct research and report on an independent examination of a case of research misconduct or other ethical issue, and participate in oral scientific and ethical discussions. Course materials will be from popular culture sources (books and videos), scientific journals, federal agency and professional society ethics training materials, and real and fictional case studies.
Major Course Materials:

1) *Research Ethics: Cases and Materials*
Edited by Robin Levin Penslar
Recommended: I will use this as a source of case studies and as a brief guide for some of the course topics.

2) *Ethics in Science: Ethical Misconduct in Scientific Research*
John D’Angelo
Recommended: I will use this as a source of case studies and as a brief guide for some of the course topics.

3) *Intuition*
Allegra Gooding

4) *The Immortal Life of Henrietta Lacks*
Rebecca Skloot
Required: A non-fiction book concerning ethical practice in human experimentation, the ownership and use of human cellular material, examples of historical racial biases in science, and many other important ethical concerns. *A #1 New York Times* Best-Seller.

5) *The Plutonium Files: America’s Secret Medical Experiments in the Cold War*
Eileen Welsome

Course Participation and Graded Assignments:
Course grades will be based on participation in and preparedness for in-class discussions and reviews, as well as on several small, written assignments, and on an individual course project with both written and oral components. The point scheme and allocation that will be used to determine the course grade appears below.

**Essay (and other short) Writing Assignments: (200 points)** There will be approximately 4-6 short writing assignments that will be announced with explicit instructions and due dates during the term (and posted on D2L). Written assignments will be abstracts (<500 words), short essays (<2000 words), or short response worksheets covering assigned course materials. Three of the short writing assignments will be based on the major readings and will be graded by peer-review as described below.

**Peer-review: (100 points)** At the end of approximately 6-8 of the lectures, 30 minutes will be devoted to peer-review of classmates’ short written work. Explicit instructions for conducting peer-review will be given for each assignment. Each peer-review exercise will consist of two sessions, a review/revise session and a review/grade session. Three
groups will be established. In the review/revise session, Group A’s work will be review by Group B (B by C, C by A) and the authors take feedback from this session to improve the quality of their work. In the review/grade session, Group A’s work will be reviewed by Group C (B by A, C by B), and each reviewer in each group will rank order the papers from best to least, assigning a score of 1 to the best and 7 to the least. The average of the peer-review scores plus Dr. G.’s score will be used to determine the assignment grade. Dr. G. will then examine the overall distribution of these scores and scale them to appropriate percentages (e.g., I may determine that an average score of 7 is consistent with a 50% score, a 6 with a 60%, a 5 with a 70%, a 4 with an 80%, a 3 with a 90%, a 2 with 95%, and a 1 with a 100%). Peer review scores will be assigned based on participation (50 points) and degree of consensus with other reviewers (50 points), the latter based on a statistical examination of the peer review scores.

**Term Project Case Study & In-class Presentation:** (150 points) Each student will choose an independent, scientific ethics case study to research over the term of the quarter. The case study will be researched and written up analogous to the preparation of a scientific manuscript. That is, the student will propose an ethical problem to study, propose a hypothesis or other thesis for the study, conduct a thorough investigation of the case via appropriate reference materials, summarize the results of the investigation, and discuss the implications of the case on ethical, scientific and societal concerns. The paper should have an Abstract, an Introduction, a Methods Section, a Results section, a Discussion section, and a Conclusion section. Topic selection must be unique in the class, and must be approved by Dr. Goforth. A list of potential subject matter is available from Dr. G., although, if you know what to look for, you will see the subject matter encountered daily in your own life. Term projects will be presented (10 minutes Presentation + 10 minutes Discussion) starting on the last day of class and continuing during the final exam period.

**In-Class Discussion Participation:** (150 points) Throughout the quarter, students will participate in daily in-class discussions, “competing” in small groups. Dr. Goforth will award arbitrary (not real) points to the groups for quality responses, points, and examples. At the end of each lecture, the number of arbitrary points will be used to establish the number of real points as follows: The group with the highest number of points will be awarded 10 of 10 points for the session; second highest, 9 of 10 points for the session; all others that have participated, 8 of 10 points for the session; absent students, 0 of 10 points for the session. In determining the participation grade, your lowest two scores will be dropped, and the percentage of total points earned/total possible points from the remaining sessions will be scaled to points out of 150.

**Total Class Points:** 200 (Short Written Work) + 100 (Peer-review) + 150 (Term Project) + 150 (Discussion/Participation) = 600 points
Course Grading Scheme:
A: 90.0-100.0%, B: 80.0-89.9%, C: 70.0-79.9%, D: 60.0-69.9%, F: <60.0%
The letter grade will be determined using the following formula: number of accumulated points / total possible points x 100%. I will use the +/- system within the broad letter-grading scheme listed above (X0.0-X3.9 (-) and X7.0-X9.9 (+); X = 6, 7, or 8).

Schedule of Topics and Assignment Due Dates:
An anticipated course schedule is given as a separate attachment. The attachment is intended as a rough guide only to the anticipated order and content of the class. Assignments and additional course content will be explicitly posted with actual due dates on D2L. Note that information posted on D2L concerning assignments and assignment due dates supersedes any information concerning these in the attachment.

Late Work and Absence Policy:
Late work will result in automatic loss of 10% of the points for the assignment for each day it is late; it may be turned in in class on the due date, or by 5 pm on the due date to the Chemistry Office (SRTC 262). Absences from class do not need to be excused, but do result in penalty to your participation and could result in penalty to your peer review grade.

Disability Resource Statement: Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the PSU Disability Resource Center, located in Room 435 of the Smith Memorial Student Union (voice phone: 503-725-4150; TTY: 503-725-6504; e-mail: drc@pdx.edu), to coordinate reasonable accommodations if you are a student with verifiable documentation.

Ethics and Integrity Statement: I would usually end my syllabus with an Ethics and Integrity statement...but since this is the topic of acute discussion for the course, I ask you to review (or read for the first time) PSU’s Code of Student Conduct and Responsibility, which can be found at the following site on the www: http://www.pdx.edu/dos/psu-student-code-conduct.