Social and Ethical Issues in STEM

(science, technology, environment, and medicine)

History of Science Department / University of Oklahoma
HSCI 2423 / Section 001 / Spring 2014 / CRN 32768
Class Meeting Time/Place: MWF 9:30-10:20am, PHSC 0222
Assistant Professor Peter Soppelsa, peter.soppelsa@ou.edu
Office Hours: MW 10:30am–12:30pm, PHSC 611 (or by appointment via email)

COURSE DESCRIPTION AND OBJECTIVES
This discussion-based course focuses on social and ethical issues in STEM fields, using historical case studies as examples. The course is divided into four units—Nature, Technology, Science, and Medicine—which present science, technology, and medicine as different facets of humankind's relationship with nature. Humans know nature through science; and manipulate, harness, and control nature through medicine and technology. In turn, nature sets real, material limits on human action. This course focuses on social and ethical issues such as: environmental impacts and disasters, technological risks and accidents, gender discrimination, genetic determinism, social constructivism, and medicine’s social power. In unit 5, students present their own final research paper topic to the whole class. This course is reading-, discussion-, and writing-intensive, designed to help students sharpen basic, general academic skills.

REQUIRED TEXTBOOKS

EXPECTATIONS, POLICIES, ASSIGNMENTS
Syllabus Notes: [1] Please keep this paper copy of this syllabus. You will need to refer to it often and may want to mark it up with notes. An electronic copy with live weblinks will be available on D2L. [2] This syllabus is a working document, designed to be flexible as needed. I reserve the right to make changes to assignments, due dates, schedule, readings and so on, but I will give fair warning in advance of any changes.

Attendance/Participation: I take attendance every class. Please complete the readings before class and be prepared to discuss them. Learning is an active, group process; the more we actively participate—by both speaking and listening—the more we learn and enrich the learning environment for everyone. Your participation grade will reflect both quantity (how often you
speak) and quality (how well you speak). Occassionally we will discuss sensitive or controversial topics. Please be respectful, courteous and civil with your classmates and the professor, be attentive and sensitive to what we have to say, and above all use common sense.

**Technology Policy:** You may use laptops in class to take notes, but please do not browse the web (email, facebook, etc.). If you pay attention to your laptop instead of class, it is your loss. Please turn off or silence all cell phones and handheld devices; if your phone rings during class, this is not your loss, because it disrupts class for everyone else.

**Individual Circumstances or Needs:** If you need to miss class for religious observance, let me know in advance and your absence and it will not affect your participation grade. If you have a learning disability, physical disability, medical condition, or any other special needs, please let me know in the first week of class, provide documentation if necessary, and I will do everything I can to help meet your needs.

**Assignments and Grading:**
* This course is graded on a 1,000-point scale: A = 1,000–900 pts; B = 899–800 pts; C = 799–700 pts; D = 699–600 pts; F = 599–500 pts.
* Participation Grade (200 pts): Attendance is counted at 40 class meetings, each worth 3 points, for a total of 120 pts just for showing up. The other 80 pts evaluate your participation.
* In-Class Research Presentation (100 pts) – Week 14 or 15, details TBA on D2L

**Written Assignments:** Papers are governed by the University of Oklahoma’s Integrity Policy. Please print, date, and sign the Integrity Pledge on all assignments: http://integrity.ou.edu/pledge.html. Academic misconduct, especially plagiarism, may result in: (a) resubmitting an assignment for regrading, (b) a formal warning and/or a zero on the assignment, or (c) an official complaint of academic misconduct with the Provost's office. For more on academic integrity and misconduct, see this website http://integrity.ou.edu/index.html and these videos: Academic Integrity at OU (http://www.kaltura.com/tiny/ivbcf); Protecting OU’s Academic Integrity (http://www.kaltura.com/tiny/i1az1); Plagiarism (http://www.kaltura.com/tiny/cyrr9).
* 1-page Weekly Response Papers (10 x 40 pts = 400 pts) May be 2 pages and single-spaced. These one-page responses cover the readings from a single week of class; 10 must be completed during the semester, and can be handed in during any 10 of the first 13 weeks. Please try to answer the following questions: (1) Reading Comprehension: What are the main topics covered, and what main points or arguments do the authors make about these topics? (2) Reading Analysis: What do the readings teach us about social and ethical issues in STEM? How do they connect with other issues from this course or with your own experiences?
* 2-page Research Paper Proposal (100 pts) – details TBA on D2L, due Friday, March 14
* 10-12 page Research Paper (200 pts) – details TBA on D2L, due Friday, May 9 Students chose their own topics. Format: 11-12 point font; double-spaced; 1-1.5 inch margins, works cited page. Please proofread carefully for grammar and spelling. Someone other than you—a classmate, friend, parent, or staff at the OU Writing Center—will make a better proofreader because others always notice mistakes in writing that authors don't see.
COURSE SCHEDULE
Note: readings are listed under the day they are assigned, not the day they are due. They are almost always due the next class after they are assigned.

UNIT 1: NATURE

Week 1: Knowing Nature through Handwork and Headwork

Mon. 1/13: Course Introduction / Unit 1 Lecture: What is Nature?

Wed. 1/15: Unit 1 Lecture, continued / Discuss Williams

Fri. 1/17: Discuss Cronon

Week 2: Ethics of Nature

Mon. 1/20: NO CLASS – MLK HOLIDAY

Wed. 1/22: Discuss Hardin and White
Reading: Jenks, Perils of Progress, Introduction, pp. 1-12

Fri. 1/24: Discuss Jenks
Reading: Janet Ore, "Mobile Home Syndrome" Technology and Culture 52, no. 2 (2011):
http://muse.jhu.edu.ezproxy.lib.ou.edu/journals/technology_and_culture/v052/52.2.ore.html
(note: you must be logged in through the OU Library website to access this article).

Week 3: Everyday Ecologies: Homes and Lawns

Mon. 1/27 Discuss Ore article
Reading: Kristoffer Whitney, "Living Lawns, Dying Waters" Technology and Culture 51, no. 3 (July 2010):
http://muse.jhu.edu.ezproxy.lib.ou.edu/journals/technology_and_culture/v051/51.3.whitney.html
(note: you must be logged in through the OU Library website to access this article).

Wed. 1/29 Discuss Whitney article
Reading: David Nye, "Can We Define Technology?" In Technology Matters: Questions to Live With (MIT, 2006), 1-15 (PDF on D2L).
Fri. NO CLASS – PROFESSOR OUT OF TOWN

UNIT 2: TECHNOLOGY

Week 4: Politics of Technology

Mon. 2/3: Unit 2 Lecture: What is Technology? / Discuss Nye reading

Wed. 2/5: Discuss Mumford and Winner
Reading: White, Organic Machine, Intro and Ch. 1, pp. ix-29

Fri. 2/7: Discuss White Ch. 1
Reading: White, Organic Machine, Ch. 2, pp. 30-58

Week 5: Harnessing Nature's Forces

Mon. 2/10: Discuss White Ch. 2
Reading: White, Organic Machine, Ch. 3, pp. 59-88

Wed. 2/12: Discuss White Ch. 3
Reading: White, Organic Machine, Ch. 4, pp. 89-113

Fri. 2/14: Discuss White Ch. 4
Reading: Jenks, Perils of Progress, Ch. 1, pp. 13-42

Week 6: Normal Accidents, Environmental Disasters, and the Risk Society

Mon. 2/17: Discuss Jenks Ch. 1
Reading: Jenks, Perils of Progress, Chs. 2-3, pp. 43-105

Wed. 2/19: Discuss Jenks Chs. 2-3
Reading: Jenks, Perils of Progress, Ch. 4 + Epilogue, pp. 106-147

Fri. 2/21: Discuss Jenks Ch. 4, Epilogue
Reading: Lewontin, Biology as Ideology, pp. 1-38

UNIT 3: SCIENCE

Week 7: Biology as Ideology
Mon. 2/24: Unit 3 Lecture: What is Science? / Discuss Lewontin 1-38
Reading: Lewontin, *Biology as Ideology*, pp. 39-84

Wed. 2/26: Discuss Lewontin 1-38 and 39-84
Reading: Lewontin, *Biology as Ideology*, pp. 85-125

Fri. 2/28: Discuss Lewontin 85-125
Reading: Schiebinger, *Has Feminism Changed Science?*, Intro and Ch. 1, pp. 1-32

**Week 8: Gender and Science, Pt. 1: Gender in the Culture of Science**
Mon. 3/3: Women in Science
Reading: Schiebinger, *Has Feminism Changed Science?*, Chs. 2-3, pp. 33-64

Wed. 3/5: Hierarchy and Inequality in Science
Reading: Schiebinger, *Has Feminism Changed Science?*, Pt. II, Chs. 4-5, pp. 65-104

Fri. 3/7: Gender in the Culture (Practice) of Science
Reading: Schiebinger, *Has Feminism Changed Science?*, Chs. 6-7, pp. 105-144

**Week 9: Gender and Science, Pt. 2: Gender in the Substance of Science**

Mon. 3/10: Medicine/Human Origins
Reading: Schiebinger, *Has Feminism Changed Science?*, Chs. 8-9, pp. 145-180

Wed. 3/12: Biology, Physics, and Math
Reading: Schiebinger, *Has Feminism Changed Science?*, Conclusion, pp. 181-196

Fri. 3/14: Gender in the Culture and/or Substance of Science
*Research Paper Proposal Due*
Reading: Collins and Pinch, *Dr. Golem*, Introduction: pp. 1-18

**Week 10: SPRING BREAK – NO CLASS 3/15–3/23**

**UNIT 4: MEDICINE**

**Week 11: Medicine, Pt. 1**

Mon. 3/24: Unit Lecture: What is Medicine? / Discuss *Dr. Golem* Introduction
Reading: Collins and Pinch, *Dr. Golem*, Ch. 1, pp. 18-34

Wed. 3/26: The Placebo Affect
Reading: Collins and Pinch, *Dr. Golem*, Ch. 2, pp. 35-61

Fri. 3/28: "Quacks" – Phony Doctors
Week 12: Medicine, Pt. 2

Mon. 3/31: Uncertainty in Medicine
Reading: Collins and Pinch, *Dr. Golem*, Ch. 4, pp. 84-111

Wed. 4/2: Alternative Medicine
Reading: Collins and Pinch, *Dr. Golem*, Ch. 5, pp. 112-131

Fri. 4/4: Contested Diseases
Reading: Collins and Pinch, *Dr. Golem*, Ch. 6, pp. 132-152

Week 13: Medicine, Pt. 3

Mon. 4/7: CPR
Reading: Collins and Pinch, *Dr. Golem*, Ch. 7, pp. 153-179

Wed. 4/9: AIDS Activism
Reading: Collins and Pinch, *Dr. Golem*, Ch. 8, pp. 180-204

Fri. 4/11: Vaccination Controversies
Reading: Collins and Pinch, *Dr. Golem*, Conclusion, pp. 205-224

UNIT 5: STUDENT RESEARCH PRESENTATIONS & RESEARCH PAPERS

Week 14: Student Research Presentations
Mon. 4/14; Wed. 4/16; Fri. 4/18

Week 15: Student Research
Mon. 4/21: Student Research Presentations (if needed) / Office Hours
Wed. 4/23 – Fri. 4/24: NO CLASS – PROFESSOR OUT OF TOWN

Week 16: Dead Week

Week 17: Finals Week: Final Papers due by end of day, Friday, May 9, 2014