Social and Ethical Issues in STEM*
HSCI 2423 / Section 001 / Fall 2016 / CRN 36688
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History of Science / University of Oklahoma
Class Meeting Time/Place: MWF 12:30-1:20pm, PHSC 402
Office Hours: MW 10:00am–12:00pm, PHSC 604 (or email for appointment)

COURSE DESCRIPTION AND OBJECTIVES
This discussion-based course focuses on social and ethical issues in STEM fields, using past and present case studies as examples. The course’s first part is divided into four units—Nature, Science, Technology, 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 and race discrimination, genetic determinism, social constructivism, and medicine’s social power. In the course’s second part, Unit 5, students present their final research paper topics in class. This course is reading-, discussion-, and writing-intensive, 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 come 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.

* I use “STEM” to mean “science, technology, environment, and medicine,” but the term is also commonly used to stand for “science, technology, engineering, and mathematics.”
for everyone. Your participation grade will reflect both quantity (how often you speak) and quality (how well you speak). Ground rules for discussion: Sometimes we will discuss sensitive or controversial topics. Please be respectful, courteous, and civil with students and the professor, be attentive and sensitive to what others say, and above all use common sense. Name-calling, personal attacks, and hate speech will not be tolerated.

**Technology Policy:** Unless you truly need to use a computer to take notes (e.g. because of a learning disability or physical limitation), please silence and do not use electronic devices during class. Using an electronic device is distracting for you, and for others, potentially degrading the learning environment for everyone. Furthermore, research in educational psychology shows that people learn and retain information better when they write notes by hand with pen/pencil.

**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 all 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](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](http://integrity.ou.edu/index.html) and these videos: “Academic Integrity at OU” ([http://www.kaltura.com/tiny/i1vbcf](http://www.kaltura.com/tiny/i1vbcf)), “Protecting OU's Academic Integrity” ([http://www.kaltura.com/tiny/i1az1](http://www.kaltura.com/tiny/i1az1)), “Plagiarism” ([http://www.kaltura.com/tiny/cyrrq](http://www.kaltura.com/tiny/cyrrq)).

* **1-page Weekly Response Papers** (10 x 40 pts = 400 pts) No more than 2 pages, 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. These papers should 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? What do the readings teach about social and ethical issues in STEM? (2) **Reading Analysis:** What do you think about these arguments? Do they have problems? Do they raise further questions? How do they connect with other issues from this course, or with your own experiences?
* **10-12 page Research Paper** (200 pts) – details TBA on D2L, due Friday, May 8. 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 readers always notice mistakes in writing that authors can’t or 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 period after they are assigned.

UNIT 1: NATURE

Week 1: Humans and Nature in STEM

Mon. 8/22: Course Introduction / Unit 1 Lecture: What is Nature?

Wed. 8/24: Concepts of Nature: Unit 1 Lecture, continued / Discuss Williams

Fri. 8/26: Problematizing Wilderness: Discuss Cronon

Week 2: Concepts of, and Ethics of, Nature

Mon. 8/29: Discuss in class: Michel Serres, The Natural Contract, Ch. 1

Wed. 8/31: Discuss in class: Michel Serres, The Natural Contract, Ch. 2
Reading homework: Michel Serres, The Natural Contract, Ch. 3, “Science, Law” (part 1), pp. 51-76

Fri. 9/2: Discuss in class: Michel Serres, The Natural Contract, Ch. 3 (part 1)
Reading homework: Michel Serres, The Natural Contract, Ch. 3, “Science, Law” (part 2), pp. 77-96

Week 3: Harnessing Nature's Forces

Mon. 9/5: Discuss in class: Michel Serres, The Natural Contract, Ch. 3 (part 2)

Wed. 9/7: Discuss in class: Michel Serres, The Natural Contract, Ch. 4

Fri. 9/9: Discuss Anthropocene reading
UNIT 2: SCIENCE

Week 4: Science: Intellectual Property, Celebrity Culture, Information Ages

Mon. 9/12: Unit 3 Lecture: What is Science? (Builds on Orwell and Wirten readings)
Reading homework: Eva Hemmungs Wirten, Making Marie Curie, Ch. 1, pp. 9-40

Wed. 9/14: Discuss in class: Wirten, Making Marie Curie, Ch. 1
Reading homework: Eva Hemmungs Wirten, Making Marie Curie, Ch. 2, pp. 41-74

Fri. 9/16: Discuss in class: Wirten, Making Marie Curie, Ch. 2
Reading homework: Eva Hemmungs Wirten, Making Marie Curie, Ch. 3, pp. 76-109

Week 8: Politics of Science

Mon. 9/19: Discuss in class: Wirten, Making Marie Curie, Ch. 3
Reading homework: Eva Hemmungs Wirten, Making Marie Curie, Ch. 4, pp. 110-144

Wed. 9/21: Discuss in class: Wirten, Making Marie Curie, Ch. 4
Reading homework: Eva Hemmungs Wirten, Making Marie Curie, Epilogue, pp. 145-166

Fri. 9/23: Discuss in class: Wirten, Making Marie Curie, Epilogue
Reading Homework: Skloot, Henrietta Lacks, A Few Words, Prologue, and Deborah’s Voice, pp. xi-14

Week 9: Ethics in Human Subjects Research

Mon. 9/26: Discuss in class: Skloot, Henrietta Lacks, A Few Words, Prologue, and Deborah’s Voice
Reading Homework: Skloot, Henrietta Lacks, Chs. 1-4, pp. 15-48

Wed. 9/28: Discuss in class: Skloot, Henrietta Lacks, Chs. 1-4
Reading Homework: Skloot, Henrietta Lacks, Chs. 5-9, pp. 49-88

Fri. 9/30: Discuss in class: Skloot, Henrietta Lacks, Chs. 5-9
Reading homework: David Nye, "Can We Define Technology?" In Technology Matters: Questions to Live With (MIT, 2006), 1-15 (PDF on Canvas).

UNIT 3: TECHNOLOGY

Week 10: Politics of Technology / Technological Failures

Mon. 10/3: Unit 2 Lecture: What is Technology? / Discuss Nye, “Can We Define Technology”
Reading homework: Nye, When The Lights Went Out, Intro and Ch. 1, pp. 1-36

*** Research Paper Proposal Due ***
Wed. 10/5: Discuss in class: Nye, *When The Lights Went Out*, Intro and Ch. 1

Fri. 10/7: OU-TEXAS HOLIDAY NO CLASS

**Week 12: Technological Failures and Collective Experiences: Blackouts**

Mon. 10/10: Discuss in class: Nye, *When The Lights Went Out*, Ch. 2
Reading homework: Nye, *When The Lights Went Out*, Ch. 3, pp. 67-104

Wed. 10/12: Discuss in class: Nye, *When The Lights Went Out*, Ch. 3
Reading homework: Nye, *When The Lights Went Out*, Ch. 4, pp. 105-136

Fri. 10/14: Discuss in class: Nye, *When The Lights Went Out*, Ch. 4
Reading homework: Nye, *When The Lights Went Out*, Ch. 5, pp. 137-172

**Week 13: Technological Failures and Collective Experiences: Blackouts**

Mon. 10/17: Discuss in class: Nye, *When The Lights Went Out*, Ch. 5
Reading homework: Nye, *When The Lights Went Out*, Ch. 6, pp. 173-204

Wed. 10/19: Discuss in class: Nye, *When The Lights Went Out*, Ch. 6

Fri. 10/21: Discuss in class: Nye, *When The Lights Went Out*, Ch. 7

**UNIT 4: MEDICINE**

**Week 11: Medicine, Ethics, and Social Difference**

Mon. 10/24: **Unit 4 Lecture: What is Medicine?** / Discuss Skloot reading

Reading homework: Skloot, *Henrietta Lacks*, Chs. 18-21

Fri. 10/28: Discuss in class: Skloot, *Henrietta Lacks*, Chs. 18-21

**Week 12: Medicine, Ethics, and Social Difference**


Reading homework: Skloot, *Henrietta Lacks*, Chs. 29-32
Fri. 11/4: Discuss in class: Skloot, *Henrietta Lacks*, Chs. 29-32

**Week 13: Medicine, Ethics, and Social Difference**

Mon. 11/7: Discuss in class: Skloot, *Henrietta Lacks*, Chs. 33-36

*No reading homework.*

Fri. 11/11: Discussion: Semester Recap

**UNIT 5: STUDENT RESEARCH PAPER PRESENTATIONS**

**Week 14: Final Discussion/Student Research**

Mon. 4/13: Student Research Presentations

Wed. 4/15: Student Research Presentations

Fri. 4/17: Student Research Presentations

**Week 15: Student Research**

Mon. 4/20: Student Research Presentations (if needed) / Extended Office Hours

Wed. 4/22: Student Research Presentations (if needed) / Extended Office Hours

Fri. 4/23: Student Research Presentations (if needed) / Extended Office Hours

**Week 16: “Dead Week” / Extended Office Hours**

**Week 17: Finals Week: Final Papers due by end of day, Friday, December 16, 2016**