GESM 121: Ethics of Science and Technology

Instructor: Elisa Warford, Ph.D.
Section 35400
MW 2:00-3:20
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MW 11:00–12:00, 1:00–2:00 and by appointment

Course Overview and Objectives

Science, technology, and society are interrelated in every aspect of our lives—transportation, communications, politics, health care, and commerce. New technologies and scientific findings undeniably shape society, such as the way social media platforms have transformed our relationships with others; likewise, society shapes the types of technologies that are developed and the scientific studies that are pursued, such as when environmental regulations spur new ways to produce energy. These technologies and scientific findings influence our decisions on both individual and societal levels. These decisions have profound ethical implications that must be considered as we enact public policies related to science and technology. This course asks the broad questions, *what are the ethical values that underpin the technologies we develop and use? Are these values desirable? Do the technologies help us pursue* eudaimonia, *Aristotle's "the good life"?*

To answer this question, we will first endeavor to define the terms *science* and *technology*. We'll also discuss the ethical nature of science and technology: are they inherently value-neutral or value-laden? Next, we'll familiarize ourselves with prominent Western moral theories to gain a vocabulary of ethics, and then we'll use these terms and concepts to analyze the ethics of some of the most pressing technological issues of the early twenty-first century. The issues we discuss will be determined in part by the interests of the class, but might include questions about who conducts and benefits from science and technology, and questions about ethical issues in software engineering, digital privacy, artificial intelligence, biomedical science and technology, overconsumption, and sustainable development.

Prerequisite(s): None
Co-Requisite/Concurrent Enrollment: None
Recommended Preparation: None

Learning Objectives

By the end of the course, students should be able to

- Identify ethical issues related to science and technology
- Think critically about the interrelationships between science, technology, and the society in which they are produced, and the ethical issues inherent in these relationships
- Understand a range of moral theories and apply these theories to ethical issues
- Conduct academic research into ethical issues in science and technology
- Communicate these analyses cogently in oral and written form

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Contact Me

Please contact me if you have questions about the course or your progress in it. The best way to contact me outside of class is by email; I do my best to respond to emails as quickly as possible (but expect a longer turnaround over the weekend). You are also welcome to drop by my office anytime during office hours; one of the best ways to enhance your education is to interact with your instructors one-on-one. My office hours and location are listed at the top of this syllabus.

A word about emailing your professors
You should think of your emails to me and your other professors as professional documents rather than texts to your friends; that is, your email should represent your best professional self. This means, in part, that you should not use a salutation of "Hey prof!" and you should use an appropriate closing (e.g., "Best regards" or "Regards" if "Sincerely" sounds too formal) and your name. The body of your email should be clear, concise, well organized, and free of grammatical errors.

Blackboard

This syllabus (including updates to it as necessary), the paper assignment sheets, course handouts, your grades, announcements, and other course materials will be posted on our course Blackboard space. Please check Blackboard often.

Attendance

There is no official attendance policy for this course. However, it is not a lecture course for which you can easily download notes from lecture slides; rather, it is a seminar, which means that the class format is largely based on class discussion. Therefore, for you to succeed in the course, you need to attend: you can expect your participation grade, as well as your paper and exam grades, to suffer as a result of excessive absences. If you must miss class it is a good idea to give me an explanation, particularly if the absence is justified and/or if you have several absences. You should also talk to a classmate about what you missed and check Blackboard for announcements or schedule changes.

Assignments

- Four short summaries of articles/essays we read for class (1-2 pages, double-spaced). You will sign up for the articles as indicated on the schedule of classes.
- Term paper: Ethical analysis of a current technology (7-8 pages)
- Two mid-term short-answer exams
- Final short-answer and essay exam
- Participation. This includes your attendance, your preparation of the readings, engagement in class discussions and activities, reading quizzes.

Grading Breakdown

There are 1000 possible points in course. Course grades will be calculated using a standard breakdown: A=94% and higher; A-=93.4%–90%; B+=86.5%–89.4%; B=86.4%–83.4%. Point breakdown is as follows:

Four summaries of reading assignments (75 points each)	300
Two short-answer midterm exams (100 points each)	200
Term paper: Ethical analysis	200
Final short-answer and essay exam	200
Participation	100
Total	1000

Paper Submissions

Unless otherwise directed, papers will be submitted through Turnitin as PDFs. Papers should be formatted as specified in the assignment.

Late Paper Policy

Summaries are due by 10:00 a.m. on the day we discuss the article in class. Late summaries will be penalized one plus- or minus- letter grade for each additional class period they are late. Any paper not turned in will result in a 0. *It is therefore always in your best interest to turn in a paper, even if it is very late. I will always accept late papers.*

Required Texts

Shafer-Landau, Russ (ed.) *Ethical Theory: An Anthology*. 2nd ed. Malden, MA: Wiley-Blackwell, 2012.

Selected articles (available on Blackboard)

Course Schedule (subject to change)

Please complete the readings before coming to class on the day they appear on the schedule. Bring the reading to class on these days as well, as we will be working from it.

ET = *Ethical Theory* textbook

BB = Available on Blackboard

Unit 1: The ethical nature of science and technology

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What do we mean by these terms? Is "progress" in science and technology controllable, or is it out of our hands, inexorable? Are science and technology value-neutral or value-laden?

Week 1   *Introduction and definitions*
        M 8/26   Introduction to course
                    Discussion of summaries and possible topics for study

        W 8/28   Definitions of technology and science
                    Marx, Leo. "Technology: The Emergence of a Hazardous Concept," *Technology and Culture* 51 (2010): 561-577. [BB]

Week 2   *Technological autonomy: Does technology control us, or do we control technology?*

        M 9/2   **Labor Day holiday**

        W 9/4   Winner, Langdon. *Autonomous Technology*. Cambridge: MIT Press, 1977. **73-106.** [BB]

Week 3   M 9/9   Jonas, "Toward a Philosophy of Technology" [BB]

        W 9/11   *Does technology have values?*
                    Winner, Langdon, "Do Artifacts Have Politics?" *The Whale and the Reactor*. Chicago: U Chicago P, 1986. 19-39. [BB]

Week 4   M 9/16   Illies, Christian and Anthonie Meijers, "Artefacts Without Agency," *The Monist*, vol 92, 2009. 420-440. [BB]

        W 9/18   **Study day—class does not meet**

Week 5   M 9/23   **Midterm exam #1**

Unit 2: Moral theories and the language of ethics
When we make value judgments in ethics, what are the ethical principles we base them on? How do we decide what is right or wrong, ethical or unethical? In this unit, we explore common ethical theories—and their limitations—and ways to apply the theories to ethical issues.

        W 9/25   *Consequentialist ethics*
                    Smart, "Extreme and Restricted Utilitarianism," 423-427 [ET]
                    Singer, "Famine, Affluence and Morality," 466-473 [ET]

Week 6   M 9/30   Harris, "The Survival Lottery," 474-478 [ET]
                    Hare, "What is Wrong with Slavery," 458-465 [ET]

        W 10/2   *Deontological ethics*

O'Neill, "Kantian Approaches to Some Famine Problems," 510-520 [ET]
Thomson, "Killing, Letting Die, and the Trolley Problem," 543-552 [ET]

Week 7	M 10/7	McGinn, "Technology, Demography, and the Anachronism of Traditional Rights" **[BB]**
	W 10/9	*Justice, care, and virtue ethics* Rawls, "A Theory of Justice," 581-592 [ET] Noddings, "An Ethic of Caring," 698-712 [ET]
Week 8	M 10/14	Aristotle, "The Nature of Virtue," 622-624 (Book II, "How a virtue of character is acquired"; "Habituation"; "Virtuous actions versus virtuous character") [ET] Annas, "Being Virtuous and Doing the Right Thing," 676-686 [ET]
	W 10/16	*Moral standing* Singer, "All Animals are Equal," 361-371 [ET] Feinberg, "The Rights of Animals and Unborn Generations," 372-380 [ET] Ethics topics ballots
Week 9	M 10/21	**Midterm exam #2**

Unit 3: Topics in Ethics
What are the ethical implications for the technologies that are being developed today?
Now we'll use the theories and concepts we have learned to discuss the ethics of the technologies that are changing the way we experience our world.

		Topics in Ethics 1: TBA
	W 10/23	
Week 10	M 10/28	
	W 10/30	
		Topics in Ethics 2: TBA
Week 11	M 11/4	
	W 11/6	
Week 12	M 11/11	

Topics in Ethics 3: TBA
W 11/13

Week 13 M 11/18

     W 11/20

Week 14 M 11/25

     W 11/27 **Thanksgiving holiday**

Week 15 M 12/2 *In-class work and conferences on ethical analyses*
           In-class work and conferences

     W 12/4 In-class work and conferences

Final review: TBA

Term papers due: TBA

Final exam: Friday, December 13, 2:00–4:00
        Meet in regular classroom