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Engineering Ethics

Dr. Adam See
Spring 2021
Tues / Thurs 11:00—12:20am

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OVERVIEW

What roles can engineers play in confronting the unprecedented challenges brought on by our increasingly technological world? This course examines various forms of engineering through the lens of applied ethics and the philosophy of technology. We will discuss topics such as whistleblowing, the ethics of drones, the politics of clean energy, sustainable design, and the extent to which automation poses a threat to democracy. This course also has a heavy focus on ethical issues pertaining to artificial intelligence, *e.g.,* could robots ever be considered legal persons? We will spend a considerable amount of time discussing engineering approaches to the climate crisis and our responsibilities to future generations.

No Required Text.

GRADE BREAKDOWN

40%	PIAZZA PARTICIPATION
30%	SHORT ESSAY
20%	MIDTERM
10%	WEBEX PARTICIPATION

ESSAY

Each student will write one short essay of 1500 words (maximum). I will provide essay topics, but you are encouraged to choose your own topic as well. I will accept early drafts of essays until 2 weeks before the due-date, which will be at the end of the semester.

EXAMS

This class has one take-home midterm. The format will be four short response questions (~400 words each). Students will work together to create study guides.

PIAZZA PARTICIPATION   (you must [sign up here](#))

Discussion boards are the most important feature of our class. Each student must make *at least three* substantive posts each week (submitted via **Piazza**). Since the purpose of this exercise is back-and-forth dialogue, you should get into a habit/flow of spreading out your posts throughout the week. Overall, this course has 11 forum exercises. I will drop your lowest grade.

Forum Expectations

Our **weekly forum posting** schedule, *unless otherwise noted,* it will work like this....

Graded Forums will follow a **Thursday-to-Thursday schedule.** Each forum lasts one week and will close on Thursdays at 10am. That means that you must upload your post record to Canvas before 10am on Thursdays.

- You must make *at least three substantive posts* within that seven day period. To receive a high grade, these posts should be somewhat spread out over the week.

- **At least one** post must be **uploaded within three days of the beginning of each lesson, i.e., around Sunday,** to encourage/facilitate participation.

- **At least two** of these posts **must be substantive *replies*** to others.

- Your major posts (but not necessarily *all* of your posts) must be **informed by content from our class readings.**

What is a Substantive Post?

Substantive responses do not have a word limit, but should be generally 250-400 words or longer. It is very difficult to say anything substantive in less space than that. Use your judgment. These forums are also intended to be big conversations so chat away naturally too! Occasional short responses are strongly encouraged. The tone should always be conversational.

The ultimate point of our forums is to evaluate you on your argumentative skills. If someone says something you disagree with, *respond to them*, get in there! And, if you get responded to, don't just reply like "oh yeah, my bad" -- no, *defend yourself,* or *change your mind*. Regardless of how you approach the forum, I want to see you anticipate strong counter-arguments to your own ideas. And, definitely, I need you to demonstrate familiarity with the assigned material.

How to Start a Great Thread

In Piazza, **always use the "Note" format** rather than the "Question" format.

Your posts are meant to demonstrate that you **(1)** have done the reading, **(2)** have thought closely about some *particular* aspect of the text, and **(3)** that you are willing to discuss the course content with your classmates.

Never just summarize!

I want you to critically analyze the text and engage with the ideas. For inspiration, here's an idea derived from Edward J. Gallagher. One can look at works of philosophy and/or science as if one has "four eyes". Each eye reveals a different perspective, and each one taps into a different level of your own thinking and requires the practice of a different skill. The "four eyes" are…

(1) Hypothesize: ask a detailed question and formulate a hypothesis about some element of the reading. Then, hypothesize potential *competing* answers to that question.

(2) Analyze: pick one portion of the text that confuses you and dive deep. What's really going on here? What does this concept really mean? What is the true foundation of this argument?

(3) Synthesize: relate a particular part of this reading to something else we read this semester. Could one idea from somewhere else be *productively* combined with one from this reading?

(4) Criticize: what did you like or not like about a particular part of the reading? Did particular arguments strike you as bad? Why? Create a hypothetical dialogue with a figure from the text.

How to Structure Counter-Argumentation

1) Author X defends idea P in the following way…
2) I disagree with X; P is a weak argument due to the following reasons…
3) The strongest way that author X might *respond to my criticisms* is as follows…
4) Author X's counter-argument would be strong/weak because…

OR:

1) Author X presents argument P in defense of her ideas
2) I find argument P convincing, however it still faces the following issues…
3) The best way that author X might *respond to my criticisms* as follows...
4) Author X's counter-argument would be strong/weak because…

Essentially, think of counter-argumentation in this class as a ***dialogue*** where you engage in a concise 'back-and-forth' with the author/philosopher of the reading. The more engaging the dialogue, the higher your grade will likely be. As a rule of thumb: the stronger you present your opponents arguments, the stronger your *own* position will come across. **High scores are given to students whose responses are nuanced,** *i.e.*, partially critical of *all* sides, including of the strength of one's *own* positions. Be humble!

Citation Format

Every homework assignment and forum post must be professionally cited. For resources cited in the lesson lecture or reading material, the author name in parentheses is sufficient, with page numbers where appropriate. For instance, your essay might read:

Turing said that the question "can machines think?" was "too meaningless to deserve discussion." (Turing, 4)

Final grades are calculated on the following scale

- A (90% of total points)
- B+ (87%)
- B (80%)
- C+ (77%)

- C (70%)
- D (50%)
- F (49%)

Uploading Your Weekly Post Record

After you have completed your participation (presumably Wednesday/Thurs), please copy and paste **all** of your posts from that week (even small ones) into a single document and upload it to the weekly assignment on Canvas with TurnItIn.

To easily collect your posts, **simply search for your own name** in the Piazza search field. Only copy and paste the posts relevant to the current lesson. Each copied post must have a date and time visible.

You can use Canvas to update / resubmit your post record if you decide to post more.

The reason I ask you to do this every week is that Piazza is not easily compatible with Canvas, so in order to use my rubric (and thus give you specific feedback) Canvas needs a document that I can grade.

I will be following all discussions every week and participating in many threads, so the context of your participation will always be at the forefront of my mind. As such, don't think of the documents you'll be uploading as anything but *basic records.* I'll be looking at Piazza itself when I determine your weekly participation grade.

As noted above, you can update an uploaded document (until the lesson ends) if you decide to post more.

Grading Policy

Your writing assignments will often be expressions of your own thoughts and beliefs on ethical issues. So I want to be clear that your grade will not depend on whether I agree with you. You are encouraged to think independently and to bring your own values and interests to our discussions. If you disagree with the views being presented or discussed in lecture and readings, you are *encouraged* to respectfully explain why by providing clear reasons and arguments. The grading rubric for this course is designed to be as objective as possible.

Many students struggle with abstract writing assignments, and many students do not have English as their first language. So I also want to be clear that your writing will not be graded on grammar or spelling, unless it makes your writing incomprehensible. The point of this course is not to write the perfect essay or perform extensive high level research. The goal of the course is to introduce you to pressing ethical issues and to provide you with various opportunities for thoughtful philosophical reflection on your *own* prior beliefs.

For this reason, your grade will largely depend on my impression of how seriously you have engaged with the course material in a thoughtful discussion of the issues. Substantive, thoughtful homework will be given more credit than half-baked or last minute homework that are transparent attempts to meet the minimum word count. To do well in class you need to demonstrate that you are thinking critically about the issues, and that you're taking the time to express your thoughts carefully.

Students are expected to attend all lectures, complete all assigned readings, and be active participants in discussions. As this is a philosophy class, much of our time together will be interactive. Missing class weighs *heavily* on your participation grade. Just as regular absences will weigh heavily on a student's final grade, regular and/or provocative contributions to discussion will also be strongly considered as I tally grades at the end of the semester.

Late Policy: Students who fail to hand in an assignment will receive a zero on the assignment. Students who fail to show up for a midterm will fail that exam. **Night-before or day-of excuses are almost never acceptable.** The only excuses that I will accept are those **accompanied by a doctor's note.** Otherwise, late work will be deducted a half-point each day.

Plagiarism: Suspected cases of plagiarism will be given **zero credit** for the assignment and **reported to the Dean** as a violation of the Student Code of Academic Integrity, which carries a maximum penalty of expulsion. Copying and pasting from the web is one form of plagiarism. Failing to provide adequate citations is also a form of plagiarism. Any work you use should be given adequate citation. If you use *any* resource in your research (including dictionaries, encyclopedias, and translation tools!), *even if you don't quote it directly*, provide a citation.

GRADING RUBRIC

1. OUTPUT / COMMUNITY

3+ (Bonus Points)	2 (Full Points / Great work)	1 (Default Grade)	0.5 / 0
5+ substantive posts You're a *serious presence* on the forums, but not in a point-grabbing kind of way. Your posts are numerous, spread out, and convey genuine interest in the course-content and our online community. Sometimes you function as an intermediary who clarifies or resolves issues that other students are struggling with.	**~4 substantive posts** Your posts are somewhat spread out over the week. Attempts are genuinely made to reply to those who reply to you. You do not simply agree with others. You either **(1)** disagree with them, **(2)** reveal a potential flaw in their argument, or **(3)** agree with them, but with qualifications, or with a new point of your own.	**3 substantive posts** Your overall output is satisfactory, but feels somewhat rushed in terms of length and content, usually posted all in one session. **At least one post is uploaded within three days of the start of the lesson.**	**Beneath expectations**

2. CLOSE READING / ASSIGNED MATERIALS

4 (Exemplary)	3 (Close & Focused)	2 (Surface-level Reading)	1
The text is analyzed with a superior eye to detail. You demonstrate intellectual humility in the face of challenging material. You raise--and are not afraid to respond to--incisive questions about difficult concepts / arguments.	There is a clear sense of your mind working through hard problems derived from the text. Key terms are defined. Connections are drawn to previous readings.	Posts are either **(1)** not closely related to the readings, or **(2)** focus too much on merely summarizing the content.	**Beneath Expectations**

3. CREATIVITY / CONTENT / CARE

4 (Exemplary)	3 (Original & Personal)	2 (Surface-level Analysis)	1
Your posts are a real pleasure to read. They are original, creative, and entertaining, *e.g.,* perhaps you construct a ridiculous yet insightful thought experiment. The strongest possible counter-arguments are constructed and considered.	You make an attempt to say something new or insightful about the text. Perhaps you evoke your own experiences. You start your own threads, do research, and aim to be a nuanced thinker by considering counter-arguments to your own views.	Posts are satisfactory in terms of content, but generally adopt an uncritical or non-nuanced perspective on the subject. Little-to-no attempt is made to entertain countervailing perspectives or to provide creative counter-arguments of your own design.	**Beneath Expectations**

Total: 10 pts (w/ option for +2 bonus)

SYLLABUS

UNIT ONE   Politics of Engineering

LESSON 1 // Script Schemas and the Ethics of Belief
> Dennis Giola, "Pinto Fires and Personal Ethics"
> William Clifford, "The Ethics of Belief" (only pg. 1-6)

LESSON 2 // Do Artifacts Have Politics?
> Winner, "Do Artifacts Have Politics?" (pgs. 121-128 and 134-5)

LESSON 3 // Aerial Drones and the Surveillance State
> Brief animated history of drones
> West and Bowman, "Domestic Use of Drones"
> Freiberger, "Just War Theory and the Ethics of Drone Warfare"
> The Intercept, Obama's Drone Wars (recommended)

LESSON 4 // Democracy and Automation
> John Dewey, "Democracy"
> Debate: "Will Automation Crash Democracy?"
> Solender, Bot Army Behind 'Reopen America' Push On Social Media
> Fishkin, We Analyzed Every Twitter Account Following Donald Trump

LESSON 5 // The Ethics of Artificial Intelligence
> HPE The Ethics of AI
> Propublica, Machine bias in sentencing
> Abby Everett Jacques, "Why The Moral Machine is a Monster"
> Allen, et al., "Prolegomena to any Future Artificial Moral Agent"
> Awad, et al. "The Moral Machine Experiment"   (recommended)
> The Greater Good - Mind Field   (recommended)

LESSON 6 // Robot Ethics

> Bryson, Robots Should be Slaves
> Danaher, Should Robots Have Rights? Four Perspectives
> Star Trek: The Next Generation, "Measure of a Man" (Netflix)

Estrada, Robot rights: cheap yo!   (recommended)
Birhane & van Dijk, Robot rights? Let's talk about Human Welfare instead (recommended)

UNIT TWO   Personhood, Distance, and Environmentalism

LESSON 7 // Robots and Human Resemblance
Debate: Should Robots Resemble Humans?
Robot at SXSW Says She Wants to Destroy Humans / We Talked to Sophia
Estrada, Sophia and her critics
Bryson, Of By and For the People: The Legal Lacuna of Synthetic Persons (recommended)

MIDTERM

LESSON 8 // Animals, Personhood, and Biofabrication
Singer, "All Animals are Equal"
Personhood: Crash Course Philosophy   (recommended)
Gruen, *Ethics and Animals* (82-92 [pages from book itself])
Forgacz, "Leather and Meat without Killing Animals" (TED Talk)

LESSON 9 // Commodity Fetishism and the Ethics of Distance
Singer, "Famine, Affluence, and Morality"
Hudson and Hudson, "Removing the Veil" (only pages 413-419)
Singer, "The Ethical Significance of the Nation-State" *One World* (pgs. 167-175)

LESSON 10 // Sustainability, Climate, and the Politics of Energy
McDonough and Braungart, *Cradle to Cradle* ("Waste Equals Food")
David Wallace-Wells, *The Uninhabitable Earth* (Selections)
   ● Required Mini-Chapters: Heat Death, Hunger, Plagues of Warming
   ● Recommended: Disasters No Longer Natural, Economic Collapse

NO FINAL EXAM