

Fall 2021

## PHIL 334-003: Engineering Ethics

Robert Cormier

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# ENGINEERING FOR ETHICAL AGENCY

Course Syllabus  
Fall 2021

PHIL 334 (003) *Philosophical Ethics*  
Central King Building 341 TuTh 10:00-11:20AM

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Office hours by appointment [njit.webex.com/meet/rdcrmr](https://njit.webex.com/join/rdcrmr)

## COURSE DESCRIPTION

We live in a world built with our needs and intentions in mind. A good engineer possesses not just technical proficiency, but empathy: they can put themselves in someone else's shoes to anticipate how their designs may be used or misused. Given how profoundly we rely on the expertise of engineers—for the safety of our buildings and bridges, the security of our data, and for our sense of what is possible—engineering as a calling demands a special set of responsibilities. Poor design can result in mass injury, theft, or death. While local codes of ethics dictate the minimum standards expected from engineers, a good engineer reflects more expansively on the ethical circumstances of their work and the things they produce. This enables them to design things that facilitate ethical agency and actively contribute to a better world. This course will provide a brief introduction to philosophical ethics and some of the ethical dilemmas engineers confront.

## GENERAL EDUCATION REQUIREMENTS

### History and Humanities

The liberal arts are a multi-faceted area encompassing communication; culture; history; humanities; philosophy; aspects of science, technology, and society; and the arts. The ability to communicate ideas is an essential characteristic of educated individuals. All students are expected to achieve proficiency in both oral and written English. All educated individuals are expected to understand and appreciate history and the world's cultures. The ideals of a liberal education transcend articular major fields and career goals. All students are expected to develop an interest in specific areas within the humanities.<sup>1</sup>

## REQUIRED MEDIA

All media can be found on Canvas or at the URLs provided in the Course Schedule. While most of the materials are readings in PDF form, we will also be watching some video clips. Optional readings are indicated as such. I may modify the schedule to keep up with what's happening in the world; if so, I will make an announcement in class and over email.

## ATTENDANCE & TECHNOLOGY POLICY

I will monitor attendance using a pocket chart at the front of the room.

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<sup>1</sup> <https://bit.ly/2ktEE2n>

- At the beginning of class, you may drop your **phone** or an **orange card** in your designated pocket; 5% bonus for using fewer than five orange and yellow cards
- If you are absent and have justified your absence with a doctor's note or letter from the university, I will mark your pocket with a **green card**
- I will give you a **yellow card** if you are absent without explanation; you are granted two free yellow cards; each additional card applies a 0.5% penalty to your final grade
- If you need to leave class for any reason, you will sign out and sign back in on a **pink card**; include your name, the date, time out and time in

No laptops are permitted in class except as an accommodation authorized by the Office of Disability Services. If you do not surrender your phone at the beginning of class, it should be silent and the screen should be dark for the duration of the lecture. If you need to access it, please sign out using a pink card and leave the class. If I catch you on the phone in class, I will give you a yellow card after one warning. If you need me to make any special accommodations, please speak to me before class or send me an email.

Do not come to class if you are sick. While in class, you are expected to comply with university policies and wear a mask if instructed to do so. Failure to observe prescribed safety measures in class will be penalized with a yellow card (after one warning) and I may ask you to leave the classroom.

## COURSE EVALUATION

Students will be expected to take detailed notes and participate in discussions in class or online. Reading comprehension will be evaluated by quizzes. Logical and critical analysis will be evaluated on the basis of independent essay planning and group work.

1. **Quizzes** — 25% total (5% each)  
*There will be six quizzes total (one every two weeks on average). They will be composed of multiple choice questions that are based on the readings. You have one week to complete each quiz on Canvas. Only your top five quiz scores will count toward your final grade.*
2. **Essay outline** — 40% total (10% proposal + 10% bibliography + 20% outline)  
*This project is divided into three parts: (a) an essay proposal with a thesis statement, (b) an annotated bibliography, and (c) an essay outline based on the template provided. I will provide the essay topic at least two weeks before the proposal is due.*
3. **Case studies** — 10% total (5% each)  
*Twice this semester you will work in groups to design a challenging moral dilemma to test and contrast different approaches to ethics. You will work with your group to (a) create a dilemma, then (b) respond to another group's proposed dilemma. You will evaluate and be evaluated by your fellow group members based on your contributions.*
4. **Debate** — 25% total (15% group grade + 10% peer evaluation)  
*You will work as a team to construct arguments to support your team's position in a debate with another group. We will compile a list of available debate topics as the semester progresses. I will evaluate the group based on general performance, and you will evaluate and be evaluated individually by your fellow group members based on your contributions.*

## LETTER GRADE CONVERSION

<b>A</b>	90-100%	<b>B+</b>	80-85%	<b>C+</b>	65-70%		
<b>A-</b>	85-90%	<b>B</b>	75-80%	<b>C</b>	60-65%	<b>D</b>	50-55%

**B-** 70-75%      **C-** 55-60%      **F** < 50%

## **ACADEMIC DISHONESTY**

Academic dishonesty includes any act that is designed to obtain fraudulently, either for oneself or for someone else, academic credit, grades, or other recognition that is not properly earned or that adversely affects another's grade. The following list of examples is not exhaustive:

- Cheating on exams or assignments by the use of books, electronic devices, notes, or other aids when these are not permitted, or by copying from another student
- Collusion: two or more students helping one another on an exam or assignment
- Ringers: taking an exam for someone else, or permitting someone else to take one's exam
- Plagiarizing: copying someone else's writing or paraphrasing it too closely, even if it constitutes only some of your written assignment, without proper citation
- Falsifying documents or records related to credit, grades, status (e.g., adds and drops, grading, transcripts), or other academic matters
- Altering an exam or paper after it has been graded in order to request a grade change

## **ACCESSIBILITY RESOURCES AND SERVICES**

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact the Office of Accessibility Resources and Services (Kupfrian Hall 201) at 973-596-5417. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

## **“HELP ME HELP YOU”**

Jerry Maguire said it best. Every year I am flooded with emails at the end of the semester from students requesting this or that grade. Very often they are disappointed when I tell them that there is little I can do for them so late in the semester. To avoid this, set your goals early and reevaluate them often. Visit me during office hours or schedule a Google Hangout so we can discuss your progress and what you can do to improve.

# ENGINEERING FOR ETHICAL AGENCY

Course Schedule  
Fall 2021

## 01 INTRODUCTION

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*What is philosophical ethics? How will this course unfold?*

### ★ SURVEY

## UNIT I: VIRTUE ETHICS

### 02 EUDAIMONIC ETHICS

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*Teleology; the golden mean; the twelve virtues; habits and education*

- ARISTOTLE, *Nicomachean Ethics* (Books I & II)  
*What does happiness (Eudaimonia) mean to Aristotle?*
- PLATO, *Meno* (selections)  
*How does Socrates approach his dialogue with Meno?*

### 03 STOIC ETHICS

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*Ataraxia and apatheia; the four virtues; freedom*

- EPICTETUS, *The Enchiridion*  
*Does Epictetus sound like an ethical husband, father, and friend?*
- ARISTOTLE, *Nicomachean Ethics* (Book III, Chapters 1-2 & 5)  
*How does Aristotle's taxonomy of virtues compare to the Stoics'?*

### ★ QUIZ 01

## UNIT II: UTILITARIAN ETHICS

### 04 THE PRINCIPLE OF UTILITY

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*Hedonism and pluralism; morality and legality; quantifying and predicting consequences*

- J. S. MILL, *Utilitarianism* (Chapters 1 & 2)  
*What does utilitarianism inherit from Epicurean philosophy?*
- FRANCES WRIGHT, *A Few Days in Athens* (Chapter 3)  
*How does Epicurean philosophy compare to Stoic philosophy?*

### 05 THE TROLLEY PROBLEM

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*Utility and justice; overly onerous moral obligations*

- PETER SINGER, *Practical Ethics* (Chapter 5)  
*What is a non-human person and is it wrong to kill one?*
- URSULA LE GUIN, "The Ones Who Walk Away From Omelas"  
*Why do they leave?*

★ QUIZ 02

★ CASE STUDIES 01

## UNIT III: DEONTOLOGICAL ETHICS

### 06 THE CATEGORICAL IMPERATIVE

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*Will and judgment; the Prime Directive and the Golden Rule; deontology and consequentialism*

- IMMANUEL KANT, *Groundwork for the Metaphysics of Morals* (First Section)  
*Why is it significant whether an action is performed from or in accordance with duty?*
- JANET STEMWEDEL, “Is the Prime Directive Ethical?”  
*In what respects does the Prime Directive reflect Kantian ethics?*

### 07 THE HONEST SHOPKEEPER

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*Thought experiments and examples; self-preservation and altruism; dignity and autonomy*

- IMMANUEL KANT, *Groundwork for the Metaphysics of Morals* (Second Section)  
*What duties are prescribed by the Categorical Imperative in each example?*
- BUNDESVERFASSUNGSGERICHT, “Judgment of 02/15/2006” (selections)  
*Is the Federal Constitutional Court’s ruling consistent with Kantian ethics?*

★ QUIZ 03

★ CASE STUDIES 02

## UNIT IV: CONTEMPORARY ISSUES

### 08 SCANDALS

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*The Ford Pinto, the Volkswagen emissions scandal and the Boeing 737 MAX.*

- DENNIS GIOIA, “Pinto Fires and Personal Ethics” <https://bit.ly/30pWILv>  
*What was Gioia’s role in the Pinto scandal?*
- MARK DOWIE, “Pinto Madness” <https://bit.ly/2QRXtti>  
*What was the problem and how was it addressed?*
- MAUREEN TKACIK, “Crash Course” <https://bit.ly/2N3xyN4>  
*What was to blame for the Boeing 737 crashes?*

### 09 AUTOMATION

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*Robots and ethical agency; workplace automation and technological unemployment*

- PETER ASARO, “What Should We Want From a Robot Ethic?”  
<https://bit.ly/2TnYyuF>  
*What are the necessary qualifications for moral autonomy?*
- C. B. FREY & M. A. OSBOURNE, “The Future of Employment”  
<https://bit.ly/2FLLKGB>  
*What kinds of jobs are most susceptible to computerization?*
- JIM EDWARDS, “Unemployment is low...” <https://bit.ly/3aaqLXU>

*Is technological unemployment a misnomer?*

- NICK SRNICEK & ALEX WILLIAMS, *Inventing the Future*  
*What is the relative surplus population?*

★ QUIZ 04

★ ESSAY PROPOSAL

10 BIOENGINEERING

*Genetic engineering; medical paternalism and libertarianism*

- IEP, "Bioethics" (§5c) <https://www.iep.utm.edu/bioethic/#SH5c>  
*What four elements do all utilitarian approaches have in common?*
- A. CRIBBS & S. PERERA, "... Bioethics of CRISPR-Cas9 ..."  
<https://bit.ly/31rCjok>  
*How does this form of gene editing work and what are the risks?*
- JON HEGGIE, "Should we edit the human germline?"  
<https://on.natgeo.com/31CgD90>  
*What the benefits and risks of germline editing?*
- JESSICA FLANIGAN, "Libertarianism and medicine" <https://wapo.st/2TAK1vC>  
*What is paternalism in medicine?*

11 GEOENGINEERING

*Ecological stewardship; carbon sequestration and solar radiation management*

- IAPG, "Definition of Geoethics" <http://www.geoethics.org/definition>  
*What is the "Geoethical Promise"?*
- JON LAWHEAD, "Geoengineering: Climate Change by Design"  
<https://bit.ly/30leDCM>  
*What is geoengineering?*
- ALAN ROBOCK, "Is Geoengineering Research Ethical?" <https://shorturl.at/eryIY>  
*What ethical questions does geoengineering research raise?*

★ QUIZ 05

★ ANNOTATED BIBLIOGRAPHY

UNIT VI: ETHICS AND POLITICS

12 JUSTICE

*Law and conscience; engineering and civil disobedience*

- HENRY DAVID THOREAU, "Civil Disobedience"  
*What motto does Thoreau accept and why?*
- MARTIN LUTHER KING JR., "Letter from Birmingham Jail"  
*What are the four basic steps of any nonviolent campaign?*
- EUGENE SCHLOSSBERGER, "Technology and Civil Disobedience"  
*Do engineers have a special duty to obey the law?*
- C. CADWALLADR & E. GRAHAM-HARRISON, "Revealed: ... major data breach"

*Who blew the whistle on Cambridge Analytica and why?*

## 13 VIOLENCE

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*Neutrality and complicity; political artifacts; engineering and extremism*

- ERIC KATZ, “The Nazi Engineers” <https://bit.ly/2FRK3ao>  
*How do we avoid rationalizing deeply unethical conduct?*
- D. GAMBETTA & S. HERTOOG, “Engineers of Jihad” <https://bit.ly/2RxWv4H>  
*Why are engineers over-represented in violent extremist groups?*

★ QUIZ 06

★ ESSAY OUTLINE

★ THANKSGIVING BREAK

## 14 CARE

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*Critique of individualism; reason and emotion; assistive technologies*

- VIRGINIA HELD, *The Ethics of Care* (Chapter 1)  
*How does the ethics of care differ from “rationalistic” moral theories?*
- CAROL GILLIGAN, *In a Different Voice*  
*Why should we moral according to the women interviewed by Gilligan?*
- ALBERT M. COOK, “Ethical Issues...”  
<https://files.eric.ed.gov/fulltext/EJ920692.pdf>  
*What is the distinction between hard and soft technologies?*

## 15 GREAT DEBATES

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TBA

★ DEBATE 01: TBA

★ DEBATE 02: TBA

★ DEBATE 03: TBA