

Philosophy 130 (PHIL 1146) Ethics in Science & Engineering

New Mexico Tech
Fall 2021
MWF 8:40-9:30 AM
Jones Annex 106

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Office Hours: Wed. 2:30-4:30 PM (Fitch 215) and by appointment in my personal Zoom room:
<https://zoom.us/my/cchoglueck>



Artist: [Sara Gironi](#)

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1. Course Description

Ethics is the study of right and wrong conduct, including considerations about rights, responsibilities, values, freedom, and justice. Ethics is an integral part of STEM: Scientists must meet ethical standards for their experiments. Furthermore, throughout the process, researchers make value judgments about what to study (and not) and how to investigate it. The technology that engineers design impacts consumers, stakeholders, and society—for better or worse! If not reflective and intentional in their pursuits, STEM professionals can compromise their scientific and moral integrity and contribute to existing social injustices, including corporate exploitation, scientific sexism and racism, and colonialism. The course introduces students to the basics of research ethics and researchers' social responsibilities. Students then explore the diverse roles for ethical values throughout science and engineering, involving researchers' choice of funding, methodology, communication, and public engagement. Additionally, we discuss social responsibility for technological development, surveying issues in computer science, environmental justice, public health, and military ethics.

As a course in practical philosophy, students will develop their abilities to think critically about ethics in real-world cases, both individually and in groups. This course is suited to introduce STEM students of all levels and backgrounds to ethical issues related to their professional and social responsibilities. The materials introduce students to a diverse set of authors and a variety of contemporary topics, including sex differences, genetic modification, pharmaceutical drugs, climate-change denial, citizen science, energy policy, algorithmic bias, Indigenous rights, nuclear waste disposal, race-based medicine, reproductive health, and the military-industrial complex. Along with regular attendance and participation, assignments include 5 quizzes, 3 short papers, and a group project. Special emphasis is placed on open-minded engagement, charitable reading, respectful dialogue, and collaborative teamwork.

1.1. Pre-requisites

None

1.2. Place in Curriculum

This class satisfies the requirements of an Area 5 (humanities) course in the New Mexico General Education Curriculum and focuses on the following Essential Skills: critical thinking, information and digital literacy, and personal and social responsibility. For more on the New Mexico General Education Requirements, please visit the following page in the NM Higher Education Department website: https://hed.state.nm.us/resources-for-schools/public_schools/general-education. In addition, this course satisfies 3 credits toward a Philosophy minor or a Science, Technology, and Society minor: <https://nmt.edu/academics/class/minors.php>.

1.3. Course Learning Outcomes

By the end of class, students will be able to:

- *Construct* and clearly *communicate* arguments about ethics in science and engineering; and defend their judgments with charity and without logical fallacies;

- *Write* essays with analytic structure about the rights and responsibilities of researchers, participants, and technologists;
- *Recognize* how value judgments & funding sources shape the process of research and development; and *evaluate* diverse viewpoints for engaging stakeholders, accounting for gender/sex, race, ethnicity, class, and nationality;
- *Collaborate* fairly with team members to analyze an ethical problem; and *research* different perspectives and solutions.

1.4. Required Text

Elliott, Kevin. (2017). *A Tapestry of Values: Introduction to Values in Science*. Oxford University Press.

Paperback from NMT Bookstore: Purchase \$40.65 new or \$32.55 used

or Download eBook from [Amazon](#): \$14.57

or Rent eBook from [RedShelf](#): \$13.50

(If you are unable to secure a copy, there is a copy reserved in the library for 2-hour use.)

Any other readings & assignments will be available electronically either on Canvas (Files>Readings) or elsewhere online.

2. Course Grading & Requirements

The total points for the class (100%) are broken down into 6 categories:

1. Attendance & Participation (20%): attend and contribute during classes, including large- and small-group discussion and online forums (3 “freebies” for unexcused absences).
2. Quizzes (25%): 5 quizzes (5% each) on readings, class content, and workshop skills.
3. Ethical story (10%): write an open-ended story about a leader caught in a difficult ethical situation, without providing a clear answer or solution (2 full pages).
4. Analytic papers (20%): write 2 analytic essays on a chosen reading, using AOR structure and including citations (2 full pages, 10% each).
5. Group project (25%): in groups of 3-4, research, analyze, and present 3+ perspectives on a contemporary ethical issue related to science and engineering. Each student is required to submit brief pre- and post-presentation reports (1/2 pg.).
6. Extra credit (+2%): write a reflection on a topic/talk approved by the professor (2 full pages).

2.1. Attendance and Participation

To facilitate active learning, the course is highly interactive and discussion-based, so regular attendance and engaged participation are required. Everyone is expected to attend every class and participate with other students in small and large groups and on discussion boards. Regarding *attendance*, Students are allowed 3 unexcused absences (“freebies”). Additional unexcused absences will result in the loss of participation points (minus 1 of the total 20). An *excused* absence is one that has been arranged between the student and the professor. (Valid excuses include hospitalization/serious illness, occupational/educational duties, family emergencies, triggering content, and religious holidays.) Students are responsible for communicating with the professor via email/Canvas.

Participation is crucial for students' abilities to recognize and engage with class topics, develop their own beliefs, and explain them to their peers. Students should engage with their small groups each class and make at least one contribution to the larger discussion each week. For *documentaries* and any *asynchronous classes*, students are to participate in online discussion on Canvas. In these cases, post a reflection and question for your peers, and then make one reply (each worth $\frac{1}{4}$ of a participation point).

2.2. Quizzes

Students will be quizzed 5 times throughout the semester, including multiple choice questions and short responses. Quizzes are aimed to assess students' comprehension of the readings (since the last quiz) and their skills following workshops. Quizzes will be available online on Canvas (45 mins. max), and students must complete them during the 48 hours before the beginning of the next class for full credit. Late quizzes are deducted 20% per day, to be arranged with the professor. *Students must take the quiz alone. They are allowed to refer to their notes, readings, and lecture recordings.* Students who need accommodations for time or for an extended period of absence should make arrangements with the professor.

2.3. Ethical Story

Students will write an open-ended story about a person in a leadership position who faces an ethically challenging situation related to STEM (at least 2 full pages, double spaced, 12-point font, 1-in margins). *Without* providing any answers, the fictional story should prompt the audience to question, analyze, and consider the best outcome based on a limited set of details about the individual, their situation, and other parties involved. Set in the present or future, the storyteller should incorporate a combination of ethical issues to add nuance and real-world complexity to their prompt, based on material from class and their own personal experience. The story should avoid overtly criminal acts and matters clearly settled by the law as well as obviously unethical conduct. While creating a complex set of circumstances, the storyteller neither offers respondents a judgment nor suggests a resolution.

Similar to an essay prompt, storytellers should end their story with setup for the audience to (1) take a stance toward the best course of action and (2) provide and elaborate on the moral justification for the decision made. This exercise invites students to think *creativity* and *empathetically* about ethics in the messy real world. The professor will grade the papers for completeness, nuance, and creativity (see examples on Canvas).

2.4. Analytic Papers

Students will write 2 analytic essays on the reading assigned during the course (at least 2 full pages, double spaced, 12-point font, 1-in margins). In these essays, students should pick a specific claim in one assigned material since the last paper. The essay should use the Argument-Objection-Response (AOR) structure (see Handouts 1 and 3):

1. *Claim*: pick a claim made in the material *that you agree or disagree with*, state it succinctly, and identify where it appeared;
2. *Argument*: state why you agree/disagree with it (the more reasons, the better);

3. *Objection*: identify a strong objection to your argument; and
4. *Response*: reply to that objection. (repeat steps 2, 3, and 4)

Papers should also state the theoretical or social significance of the issue and argument. Include at least 2 objections and responses, and use as many AORs as needed to complete 2 full pages. References should be in APA format (see [research guide](#)); citations do not count toward minimum page requirement. The aim of this exercise is to facilitate charitable reading, clear reasoning, and ability to engage constructively with objections. The professor will grade the papers for *completeness*, *charity*, and *clarity* (see examples on Canvas).

2.5. Group Project

This is equivalent to a final exam. As a final project, students will research and present in groups an analysis of a contemporary ethical issue in STEM using a case study of their choosing, engaging 3 or more different perspectives. Students are encouraged to form their own groups of 3-4; students without a group (or with an odd number) should report to the instructor. Students will use the scholarly research skills learned in workshop 3 to find information about their issue, support their arguments, and cite their sources. Groups should engage with both philosophical and scientific sources, including *at least 4* peer-reviewed articles or books (see [research guide](#)).

This exercise is aimed to facilitate students' ability to think about how ethical issues relate to concrete cases and to work through ethical problems as a group. Additionally, this exercise aims to develop students' oral presentation abilities and their group-work ethic. Students will be instructed on strategies and expectations for collaborative teamwork in workshop 4, involving fair distribution of labor and accountability. Afterward, groups are to decide on their issue and their share of the work.

The project involves three stages. **Stage 1:** Each student will submit a Pre-Presentation Individual Report, briefly covering the proposed case, ethical issues, their expected role in the group (e.g., coordinator, researcher, analyst, designer), and how it fits with the roles of other members (1/2 page). This report is a *tentative* proposal for your contribution and a means of fairly distributing work and roles. The instructor will give feedback on these reports if needed. **Stage 2:** During the week before exams, each group will create a presentation, involving some multimedia demonstration of their case study, such as a set of slides, a podcast, or an explainer video. Presentations will be during class, followed by Q/A by the group. Each group member will contribute their fair share to creating and giving the presentation. Presentations must include the following elements:

1. Include background on the case study and clear articulation of ethical problem;
2. Engage three or more perspectives on the case (including stakeholders, their values, and interests);
3. Elaborate on reasons for the perspectives; and
4. Discuss possible objections and responses and/or strengths and weakness of each.

Group presentations will be graded in terms of these four content areas, as well as research quality (4 or more scholarly sources) and presentation quality (including creativity and engagement). **Stage 3:** Following the presentation, each member will submit a brief Post-Presentation Individual Report discussing and evaluating their actual contribution to the group

(1/2 page). The instructor will use these reports to adjust individual students' grades only in the case that students were *free riders*, i.e., members who did not fulfill their fair share of the work to the group. Ideally, no grades will need adjusting.

2.6. Extra Credit

For two percentage points of extra credit toward their final grade, students may write a reflection paper on the ethical issues raised by a talk during the semester (2 full pages, 12 points font, doubled spaced, 1 in. margins). Instead of merely summarizing the talk, the essay should focus primarily on the student's own reflections, judgments, and evaluations of one or more ethical issues raised. The professor will post various talks that will work well for this assignment. Papers will be graded only for completeness.

2.7. Late Paper Policy

For all papers, a late penalty of 1% per day (out of the assignment's 100 total points) is incurred on submissions past the due date. For instance, a paper turned in 10 days late has a starting grade of 90%. For papers late by over 3 weeks, students are responsible for contacting the professor to arrange a plan for completion.

2.8. Final Grades

Final grades will be based on the percentage of total points earned (see Gradebook on Canvas): **A** (100-93%), **A-** (92-90%), **B+** (89-87%), **B** (86-83%), **B-** (82-80%), **C+** (79-77%), **C** (76-73%), **C-** (72-70%), **D** (69-60%), and **F** (<60%).

3. Notes from the Professor

I encourage all students to come by my office hours in the beginning of the semester and personally introduce yourself. My office hours are a *safe space*; I am happy to help you work through any questions or problems that might arise related to the course or school more generally. Please approach me if you have any questions about the assignments, readings, grading, other aspects of the class, or philosophy as a field of study (and the [Philosophy minor](#)). The best way to communicate with me is via email.

3.1. Course Policies for Respect and Fairness

It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity the students bring to this class be viewed as a resource, strength, and benefit. I aim to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture. Given the sensitive and challenging nature of the materials discussed in class, it is imperative that there be an atmosphere of *safety*, *inclusiveness*, and *equity* in the classroom. Accordingly, we will follow the advice of the writer James Baldwin:

*We can disagree and still love each other
unless your disagreement is rooted in my oppression and*

denial of my humanity and right to exist.

In line with this, students are also expected to promote *respectful inclusiveness*, especially in the face of differences, disagreement, and discrimination. Accordingly, certain disagreements, e.g., over the humanity, value, or abilities of marginalized groups, are disrespectful, unfair, and against our ground rules. As the instructor, I will attempt to foster an environment in which each class member is able to hear and respect each other.

Relatedly, students are expected to adopt a policy of *step forward; step back*: In order for everyone's voice to be heard, students who tend to dominate discussions should attempt to "step back" so that other students may participate and contribute to discussion; students who tend to keep quiet during discussions should attempt to "step forward" and let the class benefit from their contributions. In any discussions, all students are encouraged to ask questions and engage fellow students in a respectful manner that facilitates an interdisciplinary setting. Students should also have respect for their fellow classmates and refrain from repeating sensitive or confidential discussions outside of the classroom.

3.2. Land Acknowledgement

We acknowledge that the New Mexico Tech main campus stands on the unceded ancestral lands of the Pueblo and Mescalero Apache peoples. These lands were taken by Congress in the Indian Land Cession 689 on October 1, 1886, and the military forcibly moved the Native peoples to reservations. These injustices were accomplished under false white-supremacist ideologies such as Manifest Destiny and the Doctrine of Discovery. For those of us who are visitors to these lands, we appreciate their millennia of stewardship to the land, water, animals, and plants, and the opportunity to live and learn here. Please visit <https://indianpueblo.org/new-mexicos-19-pueblos> and <https://mescaleroapachetribe.com/> to learn more about these Native nations, their cultures and sovereignty.

3.3. Disability and Accommodations

I want this class to be accessible for each student to flourish with their unique abilities. New Mexico Tech is committed to protecting the rights of individuals with disabilities. Qualified individuals who require reasonable accommodations are invited to make their needs known to the Office for Disability Services (ODS) as soon as possible. To schedule an appointment, please call 575-835-6209, or email disability@nmt.edu.

3.4. Counseling Services

Your mental health and experience in this class is important to me. New Mexico Tech offers individual and couples counseling, safety assessments, crisis intervention and consultations through The Counseling Center. These confidential services are provided free of charge by licensed professionals. For more information, please call 575-835-6619, email counseling@nmt.edu or complete an Intake Form on our website at <https://www.nmt.edu/cds/>. All services are provided via phone or Zoom during the COVID-19 pandemic.

3.5. Academic Dishonesty

Students are expected to submit their original work on quizzes, papers, and other assignments. They must acknowledge any use (in part or full) of someone else's work with proper citations (in [APA style](#)). The instructor will not tolerate either plagiarism or cheating, which will result in an automatic failing grade on the assignment and/or the class. New Mexico Tech's Academic Honesty Policy for undergraduate students is in the Student Handbook: <https://www.nmt.edu/studenthandbook/>. Students are responsible for knowing, understanding, and following this policy.

3.6. Title IX Reporting (Gender/Sex-based Discrimination)

Sexual misconduct, sexual violence, and other forms of sexual misconduct and gender-based discrimination are contrary to the University's mission and core values, violate university policies, and may also violate state and federal law (Title IX). Faculty members are considered "Responsible Employees" and are required to report incidents of these prohibited behaviors. Any such reports should be directed to Tech's Title IX Coordinator (Dr. Peter Phaiah, 216 Brown Hall, 575-835-5880, titleixcoordinator@nmt.edu). Please visit Tech's Title IX Website (www.nmt.edu/titleix) for additional information and resources.

3.7. COVID-19 Safety Issues for Face-to-Face Instruction

As of August 5th, NMT classes are under the following constraints, which may change as COVID conditions and/or New Mexico Governor's orders change.

- 1) All vaccinated and unvaccinated individuals are required to wear a face mask indoors anywhere on campus. It is anticipated based on prior Governor's orders that, when conditions improve individuals who have not been fully vaccinated will still be required to wear a face mask and to social distance indoors. Vaccinated individuals, in contrast, would not be required to wear a mask indoors but are welcome to still wear a mask if they choose to, so please do not assume that individuals wearing masks are unvaccinated.
- 2) Instructors and TAs will not ask for proof of vaccination. This, too, may change in response to changing conditions.
- 3) Please note provisions on masks, vaccines or other possible requirements are subject to change as the situation evolves, based on guidance from the Centers for Disease Control, the State of New Mexico, and university officials (i.e., the President and the Board of Regents).
- 4) Students should not to come to class if they are feeling ill and to follow any quarantine guidelines that they are given in the event of exposure to COVID-19. If you do miss class, please contact the instructor for missed assignments, contact the Student Health Center, and consider getting tested for COVID-19.

For the most up-to-date guidelines, please consult NMT's COVID-19 information page: <https://www.nmt.edu/covid19/>.

4. Important Dates and Deadlines (subject to change)

8/20: Skills Workshop 1 (Logical Reasoning)

9/3: Quiz 1 due (before class, on Canvas)

9/8: Ethical Story due

9/22: Quiz 2 due

Skills Workshop 2 (Analytic Writing)
9/29: Analytic Paper 1 due
 In-class Documentary: *Merchants of Doubt*
10/1 and 10/4: Canvas Discussion on *Merchants of Doubt*
10/6: Quiz 3 due
 Skills Workshop 3 (Scholarly Research)
10/22: Skills Workshop 4 (Collaborative Teamwork)
10/27: Quiz 4 due
11/1: Pre-Presentation Individual Report (Group Project Stage 1) due
11/12: Analytic Paper 2 due
 In-class Documentary: *Containment*
11/15 and 11/17: Canvas Discussion on *Containment*
11/19: Quiz 5 due
11/29, 12/1, and 12/3: Group Presentations (Group Project Stage 2)
 Presentation multimedia due 12 hours before (@ 8:40 PM)
12/6: Post-Presentation Individual Report (Group Project Stage 3) due
12/7: Extra-Credit Reflection Papers due (optional)
 Late Assignments due (by midnight)
(Note: No final exam)

5. Detailed Course Schedule

Required readings/prep (—), expected in-class activities (>), and assignment due dates (*):

Part I: Ethics of Science & Engineering

Week 1:

What Has Ethics to Do with STEM?

M 8/16: Course Introduction

—Read (optional): Smith, Subrena. (2017). *Why Philosophy is So Important in Science Education*. Aeon. <https://aeon.co/ideas/why-philosophy-is-so-important-in-science-education>

W 8/18: Moral Integrity, Social Responsibility, and the Manhattan Project

—Read (selections): Fetter-Vorm, Jonathan. (2013). *Trinity: A Graphic History of the First Atomic Bomb*. New York: Hill and Wang. 100 comic-book pages.

F 8/20: Workshop on Logic

—Review: Handout 1 on Basics of Logic
—Review: Handout 2 on Common Logical Fallacies
>In class: Skill Workshop 1 (Logical Reasoning)

Week 2:

Research Ethics

[M 8/23: Class Cancelled, Power Outage]

W 8/25: The Ethics of Whistleblowing for Misconduct

—Read: Malek, Janet. (2010). To Tell or Not to Tell? The Ethical Dilemma of the Would-Be Whistleblower. *Accountability in Research* 17(3), 115-29.

F 8/27: Human Subjects and Responsible Conduct of Research

—Review: *The Nuremberg Code*. (1949). US Counsel for War Crimes. 3 pg.

<https://www.ushmm.org/information/exhibitions/online-exhibitions/special-focus/doctors-trial/nuremberg-code>

—Read: *The Belmont Report*. (1979). National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. US Department of Health, Education, and Welfare. 10 pg. <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html>

Week 3:

Socially Responsible Science

M 8/30: Triage, Surveillance, and COVID-19

—Listen: Vedantam, Shankar (host), with Peter Singer. (2020). Justifying The Means: What It Means To Treat All Suffering Equally [Audio, 54:48]. In *Hidden Brain Podcast*. National Public Radio. <https://www.npr.org/2020/06/01/866768837/justifying-the-means-what-it-means-to-treat-all-suffering-equally>

—Read: Wong, Alice. (2020). *I'm Disabled and Need a Ventilator to Live. Am I Expendable during This Pandemic?* Vox. <https://www.vox.com/first-person/2020/4/4/21204261/coronavirus-covid-19-disabled-people-disabilities-triage>

—Read: Tuccille, James D. (2020). *Coronavirus Will Be Deadly to Your Liberty*. Reason. <https://reason.com/2020/03/05/coronavirus-will-be-deadly-to-your-liberty/>

>In-class: Assign Ethical Story (due 9/8)

Part II: Values in Science & Engineering

W 9/1: Ideology and Value-Free Science

— Read: Elliott, Kevin. (2017). *A Tapestry of Values: Introduction to Values in Science*. Oxford University Press, pp. 1-17.

>In-class: Assign Quiz 1 (due Friday, before class)

F 9/3: Research Priority and Cognitive Differences by Sex

—Listen: Reser, Anna, Leila McNeill, and Rebecca Ortenberg. (2018). The Search for Male and Female Brains [Audio, 59:27]. Episode 15. *Lady Science Podcast*. <https://www.ladyscience.com/podcast/episode-15-the-search-for-male-and-female-brains?rq=differences>.

—Read: Elliott, *Tapestry*, pp. 19-25

*Due (before class, on Canvas): Quiz 1

(Note: Last day to drop classes)

Week 4:
What Should We Study? What Should We Fund?

[M 9/6: Labor Day, No Class]

W 9/8: Public Funding and the National Science Foundation

—Read: Elliott, *Tapestry*, pp. 25-31.

—Read: Basken, Paul. (2016). U.S. House Backs New Bid to Require ‘National Interest’ Certification for NSF Grants. *The Chronicle of Higher Education*.

<https://www.chronicle.com/article/US-House-Backs-New-Bid-to/235275>

>In class: Activity on federal agency funding decisions

*Due: Ethical Story

F 9/10: Private Funding and Neglected Diseases

—Read: Elliott, *Tapestry*, pp. 32-39.

>In class: Debates on values in choice of research topic

Week 5:
How Should We Study It?

M 9/13: Research Methodology and Genetic Modification

—Read: Elliott, *Tapestry*, pp. 41-48.

W 9/15: Background Assumptions and Androcentric Bias

—Read: Lloyd, Elisabeth A. (1993). Pre-Theoretical Assumptions in Evolutionary Explanations of Female Sexuality. *Philosophical Studies* 69, 139-53.

>In class: Activity on Principle of Charity

F 9/17: Sex, Drugs, and Research Questions

—Read: Elliott, *Tapestry*, pp. 53-60.

—Read: Hogenmiller, Alycia, Alessandra Hirsch, and Adriane Fugh-Berman. (2017). The Score Is Even. *The Hastings Center*. <https://www.thehastingscenter.org/the-score-is-even/>.

>In class: Debates on values in technical research methodology

Week 6:
Risk and Uncertainty

M 9/20: Scientific Communication and Objectivity

—Read: Elliott, *Tapestry*, pp. 83-92.

>In-class: Assign Quiz 2 (due Wednesday, before class)

[T 9/21: (Optional) Research Ethics Talk: Financial Conflicts of Interest]

>Prof. ChoGlueck will give a campus-wide talk on conflicts of interest and sponsorship bias. Optionally, students may write an extra-credit reflection paper (2 full pages) engaging issues from the talk. Location TBD, noon-1:30 PM.

W 9/22: Workshop on Analytic Writing

—Review: Handout 3 on Two Examples for Writing Analytic Arguments

>In class: Skills workshop 2 (Analytic Writing); and assign Analytic Paper 1 (due 9/29)

*Due: Quiz 2

F 9/24: Inductive Risk and Standards of Evidence

—Read: Elliott, *Tapestry*, pp. 92-100.

Week 7:

Manufacturing Uncertainty

M 9/27: Producing Ignorance, “The Tobacco Strategy”

—Read: Fernández Pinto, Manuela. (2017). To Know or Better Not to: Agnotology and the Social Construction of Ignorance in Commercially Driven Research. *Science & Technology Studies* 30(2), 53-72.

W 9/29: Documentary on Industry-fueled Doubt Mongering

—No reading

>In class: *Merchants of Doubt* [Video, selections]. Directed by Kenner, Roberts. (2014).

Documentary on the strategies used by chemical and oil/gas industries to defend their products with science. (Based on the book by Naomi Oreskes and Erik Conway.)

*Due: Analytic paper 1

F 10/1: Manufacturing Uncertainty about Climate Science

—Read: Elliott, *Tapestry*, pp. 100-109.

*Due: Before class, post on Canvas a short reflection culminating in a question about *Merchants of Doubt*.

Week 8:

The Ethics of Communication

M 10/4: Technical Communication and Race in Medicine

—Watch: Roberts, Dorothy. (2016). *The Problem with Race-Based Medicine* [Video, 14:36].

TEDx. <https://www.youtube.com/watch?v=KxLMjn4WPBY>

—Read: Elliott, *Tapestry*, pp. 111-120, 128-134.

>In class: Assign Quiz 3 (due Wednesday)

*Due: Before class, post on Canvas a response to someone else’s question about *Merchants of Doubt*.

W 10/6: Workshop on Scholarly Research with Librarian

—Review: Course research guide from the Skeen Library:

https://nmt.libguides.com/phil130_choglueck

>In class: Skills Workshop 3 (Scholarly Research)

*Due: Quiz 3

F 10/8: Publication Ethics and Pharmaceutical Ghostwriting

—Read: Sismondo, Sergio, and Mathieu Doucet. (2009). Publication Ethics and the Ghost Management of Medical Publication. *Bioethics* 24(6), 273–83.

Week 9:

Engaging Stakeholders

M 10/11: Public Engagement in AIDS Activism and Indigenous Science

—Read: Elliott, *Tapestry*, pp. 137-145.

—Read: Bardill, Jessica, Alyssa C. Bader, Nanibaa’ A. Garrison, Deborah A. Bolnick, Jennifer A. Raff, Alexa Walker, Ripan S. Malhi, and the Summer internship for INdigenous peoples in Genomics (SING) Consortium. (2018). Advancing the Ethics of Paleogenomics. *Science* 360(6387), 384-85.

W 10/13: Procedural Justice and Energy Policy

—Read: Ottinger, Gwen, Timothy J. Hargrave, and Eric Hopson. (2014). Procedural Justice in Wind Facility Siting: Recommendations for State-Led Siting Processes. *Energy Policy* 65, 662-69.

>In class: Activity on stakeholder analysis

[F 10/15: 49ers, No Class]

**Part III:
Technology and Social Responsibility**

Week 10:

Ethics in Digital Technology

[M 10/18: No Class]

W 10/20: Values in Technology and Google’s Algorithm

—Watch: Stephenson, Abi (director) with Cathy O’Neil. (2018). *The Truth About Algorithms*. [Video, 2:38]. Nice Shit Studio. <https://aeon.co/videos/algorithms-are-opinions-not-truth-machines-and-demand-the-application-of-ethics>

—Watch: Noble, Safiya Umoja. (2014). *How Biased Are Our Algorithms?* [Video, 16:48]. TEDx Talk. <https://www.youtube.com/watch?v=UXuJ8yQf6dI>

F 10/22: Workshop on Group Work

—No reading

>In class: Skills workshop 4 (Collaborative Teamwork)

>In class: Assign Pre-Presentation Individual Report (due 11/1)

(Note: Mid-semester point)

Week 11:

Science and the Military

M 10/25: National Security and Wartime “Exceptions”

—Read: Nie, Jing-Bao. (2006). The United States Cover-up of Japanese Wartime Medical Atrocities: Complicity Committed in the National Interest and Two Proposals for Contemporary Action. *American Journal of Bioethics* 6(3), W21-33.

>In class: Assign Quiz 4 (due Wednesday)

W 10/27: Just War and the Military-Industrial Complex

—Read: Fichtelberg, Aaron. (2006). Applying the Rules of Just War Theory to Engineers in the Arms Industry. *Science and Engineering Ethics* 12(4), 685-700.

*Due: Quiz 4

F 10/29: Pacifism and Arms Production

—Read: Kovac, Jeffrey. (2013). Science, Ethics and War: A Pacifist's Perspective. *Science and Engineering Ethics* 19(2), 449-60.

Week 12:

Public Health and Bioethics

M 11/1: Safe Sex for Men Who Have Sex with Men

—Read: Brisson, Julien, Vardit Ravitsky, and Bryn Williams-Jones. (2019). Towards an Integration of PrEP into a Safe Sex Ethics Framework for Men Who Have Sex with Men. *Public Health Ethics* 12(1): 54–63.

*Due: Pre-Presentation Individual Report (1/2 page)

W 11/3: The Right to Choose and Reproductive Justice

—Watch: Parker, Willie. (2016). *Reproductive Justice: A Different Horizon* [Video, 10:44]. TEDxJacksonHole. <https://www.youtube.com/watch?v=aFpNJgtoCvg>

—Read: Ross, Loretta. (2006). Understanding Reproductive Justice: Transforming the Pro-Choice Movement. *off our backs*, 36(4), 14-19.

>In-class: Assign Analytic Paper 2 (due 11/12)

F 11/5: Healthcare for Immigrants and Refugees

—Read: Fabi, Rachel. (2019). Public Health in the Context of Migration: Ethics Issues Related to Immigrants and Refugees. In J. Kahn, N. Kass, and A. Mastroianni (eds.), *Oxford Handbook of Public Health Ethics* (pp. 245-56). Oxford University Press.

Week 13:

Environmental Injustice

M 11/8: Environmental Violence and Indigenous Knowledge

—Read: Whyte, Kyle Powys. (2018). Settler Colonialism, Ecology, and Environmental Injustice. *Environment and Society* 9(1), 125-44.

>In class: Vote on topics for student choice week

W 11/10: Environmental Racism and the Burden of Pollution

—Read: Shrader-Frechette, Kristin. (2017). How Some Scientists and Engineers Contribute to Environmental Injustice. *US National Academy of Engineering: The Bridge* 47(1), 36-44.

F 11/12: Documentary on Nuclear Waste and Future Generations

>In-class: Watch *Containment* [Video, selections]. Directed by Moss, Robb and Peter Galison. 2015. Documentary on long-term storage of nuclear waste and communicating hazards deep into the future.

*Due: Analytic Paper 2

**Part IV:
Student Choices and Group Presentations**

**Week 14:
Student Choice Week**

M 11/15: Student Choice Topic TBD

—No reading

>In class: Assign Post-Presentation Individual Report (due 12/6)

*Due: Before class, post on Canvas a short reflection culminating in a question about *Containment*.

W 11/17: Bringing Everything Together

—Read: Elliott, *Tapestry*, pp. 164-178.

>In class: Assign Quiz 5

*Due: Before class, post on Canvas a response to someone else's question about *Containment*.

F 11/19: Student Choice Topic TBD

—No reading

*Due: Quiz 5

[M 11/22—F 11/26: Thanksgiving Break, No Class]

**Week 15:
Final Group Presentations**

M 11/29: Group Presentations

—No readings

>In class: Presenters TBD

*Due: Presentation multimedia (12 hours before class)

W 12/1: Group Presentations

—No readings

>In class: Presenters TBD

*Due: Presentation multimedia (12 hours before class)

F 12/3: Group Presentations

—No readings

>In class: Presenters TBD

*Due: Presentation multimedia (12 hours before class)

(Note: Final day of class)

[M 12/6—F 12/10: Finals Week, No Class]

*Due M 12/6: Post-Presentation Individual Report (1/2 page)

*Due T 12/7: Extra-credit reflection (optional)
+ Late assignments (by midnight)

(Note: No final exam)

Disclaimer:

The content of this syllabus is subject to change. The instructor will notify students in class and via Canvas of any changes with prior warning.

6. About the Professor

I am the Assistant Professor of Ethics at New Mexico Tech. I specialize in philosophy of science, biomedical ethics, and feminist philosophy. My research and teaching lie at the intersection of science and values, particularly the philosophical issues raised by pharmaceutical drugs. My main line of research explores how values and gender norms shape drug regulation at the US Food and Drug Administration (FDA), involving reproductive health and the labeling of drugs, as well as the consequences for women's health and reproductive justice. I am currently analyzing how values influence biomedical research on male birth control in the form of double standards.

Through philosophy, I work on socially relevant issues in health equity, public policy, and industry-funded research. To engage a broader audience, I write essays about public philosophy and science communication. To get outside my head, I climb rocks and read comics. My daily struggle is keeping house plants (likes terrariums and bonsai trees) alive in the desert climate of New Mexico—which is much less cooperative than my original home, New Orleans, LA.

I offer several philosophy courses for undergraduates involving ethics and values in science, for both general education and degree requirements in biology, computer science, and IT. I also teach gender studies courses about feminism and sex/gender in science. I am the primary adviser for philosophy minors in the CLASS department. Course offerings include:

- PHIL 130: Ethics in Science and Engineering, offered regularly.
- GNDR/PHIL 289: Science & Gender, spring semesters.
- PHIL 342: Philosophy of Bioethics, fall semesters.
- PHIL/CSE/IT 382: Ethics in Computing and Information Technologies, spring semesters.
- CYBS 502: Cybersecurity Ethics & Law, fall semesters.

For syllabi and more, see my website at:

<http://nmt.edu/academics/class/faculty/cchoglueck/index.php>.