

STS 4600: The Engineer, Ethics, and Professional Responsibility

Becoming a Professional

In this class, you'll learn how to research and evaluate the ethics and social impact of your engineering work. We will spend half of our sessions developing your research and writing skills by working on your STS research paper. The writing process is really a process of *re-writing*—of re-thinking and revising your argument and how you communicate it. You'll write several drafts and receive comments from your classmates and me to help you improve your analysis and writing skills. You'll also develop a better sense of clear, convincing argumentation by reading and giving feedback on your classmates' work. You'll practice asking thought-provoking questions and giving and receiving constructive criticism. By discussing challenges you're having with your classmates, you'll learn to identify problems and brainstorm solutions together.

The other half of our sessions will introduce you to ethical theories, approaches, and ways of thinking to guide your professional work and help you become a more thoughtful and morally-aware person and professional. You'll learn to address ethical dilemmas by identifying the moral beliefs underlying the conflicts. You'll apply theories, such as utilitarianism, duty ethics, and virtue ethics, to real-life examples of ethical dilemmas to evaluate the possible causes and solutions and then choose the best action. Learning to analyze decisions from the perspectives of societal benefit, professional responsibility, and moral judgments of right and wrong will prepare you to make ethical choices in your future career.

Please read the General Syllabus for STS 4600 in addition to this syllabus for our section.

What You'll Learn

For all sections:

At the end of this course, you should be able to:

- research, analyze, and present persuasive arguments about the social and ethical dimensions of engineering problems and solutions.
- describe the ethical principles and codes that are relevant to engineering.
- frame questions about ethics and take a systematic approach to analyzing ethical issues, especially those that arise in engineering.

For our section:

At the end of this course, you should be able to:

- assess the reliability of a variety of information sources (e.g., texts, videos, websites).
- communicate clearly in written assignments, discussions, and presentations.
- collaborate effectively with your peers.

Whom You'll Learn With: Dr. Caitlin Wylie (she/her)

I am a sociologist of knowledge and scientific practice. More info here:

<https://engineering.virginia.edu/faculty/caitlin-donahue-wylie>

Contact info: wylie@virginia.edu, Thornton Hall A231

Office hours: Tuesdays 1-3pm in Thornton A231 or on Zoom, or email me to meet another time.

What You'll Need

Buy: Turabian, Kate L. 2019. *Student's Guide to Writing College Papers*. 5th ed. Chicago: University of Chicago Press. (The 4th edition is also fine, though I'll assign chapter numbers from the 5th edition.)

Download: Course readings from our Canvas site.

Consult: STS Research Guide <https://guides.lib.virginia.edu/sts>

How You'll Learn

We'll discuss these assignments as they approach and I'll post explanations on Canvas.

Research outline	5%
Two half-drafts of STS research paper	20% (10% each)
Final STS research paper	20%
Sociotechnical synthesis	5%
Group presentation of an ethics case	15%
Two ethics responses	15% (7.5% each)
Participation (e.g., in-class assignments)	20%

Academic Integrity

I trust you to follow UVA's Honor Code. That means being honest with your classmates and me, as well as not giving or receiving unauthorized aid on assignments as defined by the Honor Guidelines for STS papers. You will give and receive *critique* on your work in this class, but that means exchanging ideas and general suggestions. You may not *edit* someone else's work, meaning make specific changes to it, nor have someone edit your work (except the Writing Center and me). Collaboration is valuable, but doing each other's work does not lead to learning. To improve your writing, please talk to me and/or the Writing Center. Also, if you claim that someone else's words or ideas are your own, you are plagiarizing. Plagiarism is both cheating and stealing, and therefore is an honor violation.

- For strategies to understand and avoid plagiarism, read Turabian (2019) ch. 10 and this site: <https://honor.virginia.edu/plagiarism-supplement>
- Information on the Honor System: <http://www.virginia.edu/honor/overview/>
- Honor Guidelines for STS papers: See the General Syllabus for all sections of STS 4600

How to Succeed in This Class

- I recognize and value the many perspectives that you bring to the classroom. Many factors—social identities, visible and invisible disabilities, family circumstances, physical location, mental health, access to the internet—influence the experiences that each person can have in class this and every semester. I am committed to building an environment to support your learning, one that encourages you to go out on a limb to communicate and defend your ideas so that we can all learn from each other.
- Communication is key. Let me know how I can help you do your best work. If you have a disability or think you may have a disability, consider meeting with the Student Disability Access Center (SDAC, sdac.studenthealth.virginia.edu).
- Read the assigned sources carefully before class. If you don't, class will be boring for us all.
- This is a discussion-based course. Anything that prevents you from actively listening and speaking in class is bad for you and for the rest of us. Help yourself learn by reducing distractions.

- Take notes. Studies show that writing things down helps you pay attention and think critically, even if you don't read your notes again.
- Turn in assignments on time. You know when the due dates are (hint: they're listed on Canvas), so plan accordingly. If you need an extension, ask. It's better to talk to me than to not submit your work. Reading responses and in-class assignments are time-sensitive, so I will only accept those late for half credit.
- Make good decisions about when you need to miss class. Being in class is crucial for your learning, especially in a discussion-based course like this one. However, I trust you to decide when you need to be absent. In particular, it is in the best interest of everyone in our community to keep the spread of infectious disease to a minimum. If you are ill, stay away from classes. Let me know how I can help you catch up.
- My office hours are for you. Please sign up on Canvas to discuss your questions and concerns with me. If you can't come during my office hours, email me to schedule a meeting.
- I am committed to reducing violence, harassment, and discrimination at UVA and in our community. Every person can play a part in reducing these problems. For more information, visit UVA's Office of Equal Opportunity and Civil Rights: <https://eocr.virginia.edu>

How This Class Works

On **Writing Workshop** days, we'll discuss an aspect of research or writing and then you'll meet with your writing group to practice that aspect. You'll also discuss challenges, successes, and helpful resources. Your writing group is your support group! You will research and write your STS research paper on your own, but it is valuable to discuss the process and exchange feedback with classmates. You should be continuously writing and revising your paper. On every Writing Workshop day, bring the latest version of your STS research paper to class, either in hard copy or on a laptop.

On **Ethics Case** days, a group will present a case of an ethical dilemma. Everyone will read about the case before class. The presenters will explain and contextualize the case, and then lead a discussion, debate, reenactment, game, or other engaging activity to help the class think through the moral problems and possible solutions of the case. You will choose a case from a list and then your group will choose a presentation date. Your group must meet with me a week before your presentation to discuss your plan for the presentation. When you are an audience member, you're expected to read carefully before class and participate during class. You'll also write responses to two of the cases (not the case you present).

What We'll Do

(This plan will change! See Canvas for current information.)

Date	Questions	To prepare for class, read:	To prepare for class, think about:	Turn in on Canvas before class
1/18	How do you write an STS research paper? What is engineering ethics?	Syllabus, Research Outline assignment	What does it mean to be a good engineer?	
1/23	Writing Workshop: Framing sociotechnical problems	Basken, 2016 (if you hit a pay wall, find a PDF in the Resources tab then Readings tab); Hern,	Who decides what is a technical problem? A social problem? A sociotechnical problem?	

		2015 ; Turabian (2019) ch 2		
1/25	How can you solve problems in your research?	Skim Turabian (2019) ch. 5-10 to find the useful parts and then read the useful parts carefully.	What's in the way of your STS research?	Research outline
1/30	Research training with librarian Maggie Nunley	Maggie's STS research guide (find it at the Library Resources tab on our Canvas page)	What are you struggling with in your STS research? What kinds of help do you need?	
2/1	Writing Workshop: How should you write?	Lamott (1994) ch. 1 ; make sure you've skimmed/read Turabian (2019) ch. 5-10	Who is the audience for your STS research? How should you write for them?	
2/6	Writing Workshop: Using STS theories to investigate your topic	Bailey (2007) ; USC Guide ; Loseke (2013) ; STS concepts worksheet ; Verham, (2015) (Verham's article is based on his STS thesis at UVA! Pay attention to how he applies STS theories.)	How do theories help us understand evidence and research questions? How does evidence help us understand and revise our theories?	
2/8	Writing Workshop: Peer review	Turabian (2019) pp. 95-96 and ch. 14, 16, 18 (total: 7 pages!)	What is "good" feedback? How do you give and receive it?	First 1000-1500 word "chunk" draft (submit on Canvas AND bring it to class as a hard copy or on a laptop)
2/13	Writing Workshop: Evaluating sources	Graff and Birkenstein (2010) intro, ch. 1, ch. 4 ; G&B's templates . Optional: How to write counterarguments .	How do you prepare for and answer readers' questions and complaints? How do you address arguments that refute your argument?	Bring to class a source from your STS research that has a clear argument.
2/15	Writing Workshop: Building and supporting an argument	Greene (2018) (pay attention to how she makes her argument)(if you hit a paywall, try here)	What's your point? (Ask this of every paragraph, every section, and your entire paper.)	

2/20	Writing Workshop: What are you struggling with? (e.g., structuring paragraphs, integrating a theoretical framework, writing time)	<p>TBA</p> <p>Possible readings based on what you need: On paragraphs: Schultz, 2009, ch. 8. Optional: Schimel, 2012, ch. 11.</p> <p>Examples of STS papers with strong theoretical frameworks: Nayak, 2017(he applies the theories of Kantian ethics, the Darwinian workplace, and rational choice theory); Hutchinson, 2018 (SCOT, i.e., relevant social groups, interpretive flexibility, closure).</p> <p>On the Pomodoro technique: Pomodoro</p>		
2/22	Writing Workshop: Writing the intro and conclusion	Turabian (2019) ch. 13	How should intros be structured? How are intros and conclusions similar? different?	Brainstorm ideas of specific cases of ethical dilemmas in engineering you'd like us to discuss as a class. Post them on the Google Doc listed on Canvas.
2/27	Peer review of 2 nd chunk draft			Second 1000-1500 word "chunk" draft (submit on Canvas AND bring it to class as a hard copy or on a laptop)
2/29	Writing Workshop: Revising and final touches	Turabian (2019) ch. 14 (again), 15, 16 (again)	How should you polish a draft into a final paper?	Prepare to choose an ethics case you'd like to present. We'll choose cases in class.

3/2-10	No class – spring break			
3/12	How should engineers analyze ethical dilemmas?	Johnson (2020) ch. 3; Should Batman Kill the Joker?	Define utilitarianism, deontology, and virtue ethics. Why are these theories useful? What are their limitations?	
3/14	How are ethics codified?	Johnson (2020) ch. 2; choose TWO codes of ethics to read: <ul style="list-style-type: none"> • NSPE (Natl Soc of Prof Eng): http://www.nspe.org/resources/ethics/code-ethics • IEEE (electrical eng): http://www.ieee.org/about/corporate/governance/p7-8.html • AIChE (chem eng): http://www.aiche.org/about/code-ethics • ASME (mech eng): https://www.asme.org/getmedia/9EB36017-FA98-477E-8A73-77B04B36D410/P157_Ethics.aspx • ASEE (eng ed): https://www.asee.org/member-resources/resources/Code_of_Ethics.pdf • ACM (software eng): http://www.acm.org/about/s-e-code 	Can ethics be codified? Why do we try? How should we reconcile the various codes of ethics in our lives (e.g., from our cultures, professions, institutions, religions, etc.)?	

		<ul style="list-style-type: none"> ASCE (civil eng): http://www.asce.org/code-of-ethics/ 		
3/19	Peer review of complete drafts			Complete 3000-3750 word draft (bring enough <u>hard copies</u> for everyone in your writing group and also submit it on Canvas)
3/21	Should engineers be responsible for pursuing social good? social justice?	Johnson (2020) ch. 8	What is the scope of engineers' responsibilities to society? What should it be? What might "engineering for social good" mean?	
3/26	What does it mean to be a good person? A good engineer?	Tanweer et al. (2017) ; Brooks (2016)	How should you decide how to react to an ethical dilemma? What are the virtues of being a professional? What does it mean to be a good person? A good engineer?	Final research paper
3/28	How should you write a sociotechnical synthesis? Should children use digital devices?	Read the assignment on Canvas, and read the sample syntheses. On the ethical dilemma of children's access to technology, read Bowles (2018) .	What problems or ideas unite your STS and technical research papers? Rich parents are more likely to ban tech for their kids than poor parents. Should technology be "a huge social experiment on children" (Bowles, 2018)?	
4/2	Whistleblowing & professional responsibility:	Iati 2020 (URL and PDF on Canvas); Vasquez		

	the ethics of COVID dashboards	2020 on university COVID dashboards		
4/4	Ethics Case 1			
4/9	Ethics Case 2			Paper revisions
4/11	Ethics Case 3			
4/16	Writing Workshop: ST synthesis peer review			Sociotechnical synthesis (bring a hard copy or a laptop)
4/18	Ethics Case 4			
4/23	Ethics Case 5			Final sociotechnical synthesis
4/25	Ethics Case 6			Two ethics responses (due by 11:55pm). Optional: bring your full portfolio draft on a laptop and I'll check it for you.
4/30	DIY ethics		What is your code of ethics for yourself as a professional?	Upload your final thesis portfolio to the UVA library! Hurray! (Portfolio must be submitted by 5/10.)
5/2-5/10	No class – Reading Days and Exams			

Grading Scale

97.0-100	A+
93.0-96.9	A
90.0-92.9	A-
87.0-89.9	B+
83.0-86.9	B
80.0-82.9	B-
	etc.