WRIT 340 Communication for Engineers
Engineering for Climate Change and Sustainability

Instructor: Elisa Warford, Ph.D.
Sections:
MW 3:30-4:50, 5:00-6:20
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Office hours:

Course Overview and Objectives

A 2018 report by the U.N.'s Intergovernmental Panel on Climate Change Climate concluded that climate change is occurring earlier and more quickly than scientists previously thought. The report urges a rapid reduction in carbon emissions to avoid devastating consequences to humans, animals, and the environment. To reduce emissions, engineers must develop and improve sustainable technologies in fields such as energy, transportation, buildings, and agriculture. Other technologies will be needed to help us adapt to the new climate. Clearly, engineering plays a vital role in mitigating and adapting to climate change.

But engineering does not happen in a cultural vacuum; it operates in a complex sociotechnical system in which national and global politics, economics, and culture affect the development and implementation of climate change-related technologies. The ethical implications of the technologies must also be considered. Further, the risks of climate change and the technologies and policies addressing it must be clearly and persuasively communicated to the public and policy-makers.

The theme of our readings, discussions, and writing this semester will thus be the engineering and communication of climate change and sustainability. You'll be writing papers, articles and reports, giving oral presentations, and learning to present data in drawings and graphs. For a group project, you'll review the research on a technology related to climate change and sustainability and its sociopolitical implications.

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

- Write for academic, public, and professional audiences.
- Demonstrate research and documentation abilities at the upper-division level.
- Write accurate, precise technical prose.
- Revise and edit to advanced academic and professional standards.
- Understand the ethical issues related to climate change and climate change-related technologies.
- Compose a professional report that surveys the research on a climate-change related technology.
- Prepare and give professional oral presentations for a variety of audiences and purposes.

- Use visual aids in both written and oral communications.
- Work collaboratively to research, write, and present information and ideas.
- Typeset papers in LaTeX

Catalogue Description

WRIT 340 Advanced Writing (3-4, FaSpSm): Instruction in writing for various audiences on topics related to a student's professional or disciplinary interests, with some emphasis on issues of broad public concern. *Prerequisite*: WRIT 130 WRIT 140, or WRIT 150. *Required*.

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.

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.

Assignments and Grading

You will be evaluated on the following assignments and activities:

Ethics analysis paper
 An academic research paper in which you analyze an ethical issue related to technologies that address climate change or sustainability.
Interdisciplinary technology review
 A collaboratively written review on the technological, economic, policy, and/or ethical aspects of a technology related to climate change or sustainability.
Technical description or research summary
 The technical description is a brief description of the technology related to climate change or sustainability. The research summary is a summary of a scholarly article related to your technology review. This description or summary will become a part of your literature review.
Op-ed article/[Illumin]
 An op-ed article in which you address a specific demographic in the public on the usefulness of a certain technology to combat climate change.
Oral presentation of the technology discussed in the op-ed article
Portfolio
 Revisions of your ethics paper and op-ed article.

Participation
> *Your level of involvement and professionalism in the class (see below).*

Overall class participation
In general, I will award high participation grades to those who demonstrate an active engagement in the class: attending class regularly and arriving on time, acting professionally in class, doing the readings before class, and making valuable contributions to the class during draft workshops, group work sessions, and class discussions.

You can lose points by being absent, being consistently late, texting during class or taking phone calls, working on assignments for other courses during class, coming to class unprepared, or otherwise disrupting the class.

Grade breakdown
Each assignment will receive a specified number of points, for a total of 900 points.

Assignment	Points
Ethics paper	200
Interdisciplinary technology review	125
Proposal memo for tech review	50
Technical description for tech review	75
Op-ed article	150
TED presentation	100
Portfolio	150
Class participation	50
Total	900

There is no curve in this course: an A is 94% and above, A- 90-93.5%, B+ 87-89.5% and so on.

Paper grades will be based on a common WRIT 340 rubric, available at http://viterbi.usc.edu/academics/programs/ewp/writing/. The rubric for oral presentations can be found on Blackboard.

Attendance

There is no official attendance policy for this course. However, I will take roll at the beginning of each class period, and a portion of your participation grade will be based on your attendance. Furthermore, you can expect your paper grades to suffer as a result of excessive absences. As you would for a supervisor at work, 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.

Rough draft feedback policy

I am happy to provide suggestions on rough drafts. Due to time constraints, I can provide general feedback on entire rough drafts only in conference in my office. If you have specific questions about a paper, such as its introduction, support for a particular paragraph, or citation questions, I will be happy to answer those questions over email.

Paper submissions

Unless otherwise directed, papers will be submitted through Turnitin as PDFs. Unless otherwise directed, papers should be typeset in LaTeX.

File names
Please use the following file name for your papers: "Last name Major Assignment." For example, "Turner ME Ethics."

Paperless course

To reduce paper waste, I will generally not print assignment prompts or course materials. Thus, it is important that you bring your laptop to class every day. However, I realize some students prefer to receive printed copies of course materials. If you would prefer to receive printed materials, please let me know and I'll be happy to print you copies.

Late papers

Papers are due by 11:59 p.m. on the day specified on the schedule of assignments. However, you will be allowed one late paper without penalty, for whatever reason, for the ethics paper or portfolio. You have one class period (until midnight) after the original due date to turn in the paper; after that, it will be penalized one plus- or minus-letter grade for each additional class period it is late. After you have used your free extension, any paper turned in late will be penalized one-half letter grade for each class period it is late. You do not need to inform me in advance that you will be using the extension.

Any paper not turned in will result in a 0, which will significantly lower your course grade. *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.*

Academic Integrity

Plagiarism is an issue in both academia and the professional world. With the proliferation of digital resources on the Internet, many of which cut and paste information from one website to another with no acknowledgement of the original source, it can be difficult for students to understand the importance of clear documentation. However, both students and professionals can face serious consequences for claiming someone else's work as their own.

Because we are in an academic setting, plagiarism (e.g., submitting someone else's work—in whole or in part—as your own, submitting your own work completed for another class without my permission) or falsifying information will not be tolerated. This includes failing to document sources properly, paraphrasing too closely to the original, and, of course, outright stealing. Depending on the violation, according to official University sanctions, you may fail the paper, fail the course, and risk suspension from the school. For an the University's sanctions, see http://web-app.usc.edu/scampus/). For an overview of the University's policies concerning academic integrity, including what constitutes plagiarism, see http://breeze.usc.edu/academicintegrity.

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in GFS 120 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is 213-740-0776.

Required Texts and Materials

Tufte, Edward. *Visual and Statistical Thinking: Displays of Evidence for Making Decisions.*
Available as an e-book ($2) or in print at http://www.edwardtufte.com/tufte/ebooks
Available in print at Amazon ($7)

Recommended Text

Williams, Joseph M. and Gregory G. Colomb. *Style: Lessons in Clarity and Grace*. 11th ed. Boston: Longman, 2010.
Available at Amazon and in the bookstore.

Course Schedule (subject to change)

Please complete any 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. Bring your laptop to class every day.

[BB] indicates reading is available on Blackboard

Week 1	M 8/26	Introduction to course and climate change communication
	W 8/28	*Ethics of climate change and the role of technology* Reading: Gardiner, "A Perfect Moral Storm" [BB];
Week 2	M 9/2	**Labor Day holiday**
	W 9/4	Ethical issues of solar energy, nuclear energy, fossil fuels Reading: Jamieson, "Energy, Ethics, and the Transformation of Nature" [BB]
Week 3	M 9/9	Introduction to ethical theory and engineering codes of ethics Case study: Ethics of geoengineering (or dams)
	W 9/11	Research day—bring laptops Abstracts and introductions **Abstracts due by midnight**
Week 4	M 9/16	Reading: Example article TBA Formatting: Introduction to LaTeX
	W 9/18	TBA
Week 5	M 9/23	Individual conferences—meet in my office at your assigned conference time
	W 9/25	Individual conferences—meet in my office at your assigned conference time
Week 6	M 9/30	**Ethics rough drafts due in class** Draft workshop Introduction to LaTeX. Bring laptop to class. Style: Clear verbs
	W 10/2	**Ethics papers due on Blackboard by 11:59 p.m.** *Introduction to interdisciplinary technology review* Select groups and topics Style: Clear subjects
Week 7	M 10/7	Group meetings Style: Cohesion and coherence

	W 10/9	Group meetings Meeting notes **Proposals due by Friday at midnight**
Week 8	M 10/14	Data visualization Reading: Tufte, "Visual and Statistical Thinking: Displays of Evidence for Making Decisions" Climate change data visualization
	W 10/16	Technical description and research summaries Style: Managing emphasis
Week 9	M 10/21	**Technical description/research summary rough drafts due in class** Draft workshop with group members **Technical description/research summary due by 11:59 on Blackboard**
	W 10/23	Group meetings Style: Concision
Week 10	M 10/28	Group meetings Elements of formal reports
	W 10/30	**Interdisciplinary review rough drafts due in class** Group conferences with Prof. Warford
	F 11/1	**Interdisciplinary reviews due by 11:59 p.m. on Blackboard**
Week 11	M 11/4	*Writing for the public* Communication of climate change science and technology Reading: Somerville & Hassol, "Communicating the Science of Climate Change" [BB]
	W 11/6	Writing an op-ed Reading: Stephens, "Tips for Aspiring Op-Ed Writers" https://www.nytimes.com/2017/08/25/opinion/tips-for-aspiring-op-ed-writers.html
Week 12	M 11/11	**Op-ed rough drafts due in class** Draft workshop
	W 11/13	**Op-ed articles due by midnight** Slide design—bring laptops

Week 13	M 11/18	How to give an effective technical presentation
	W 11/20	**TED presentations**
Week 14	M 11/25	**TED presentations**
	W 11/27	**Thanksgiving holiday**
Week 15	M 12/2	Portfolio conferences in class
	W 12/4	**Portfolios due in class**