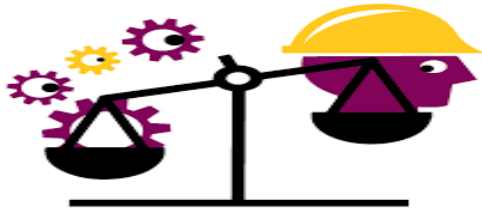


**Syllabus**  
**Social and Ethical Implications of Engineering**  
**LEAP 1501-004, Fall 2024 (BF) (SUST)**  
**M, W, F; 9:40 am- 10:30 pm; GC 3660**



**Instructor:** Dr. Louise Pedersen

**Email:** [louise.pedersen@utah.edu](mailto:louise.pedersen@utah.edu)

**Course Type:** In-person

**Office Hours:** Mondays, 12-1:30 pm, Sill Center, room 156 (or by appointment)

Leap Support	Name	Contact Information
Peer Advisor	Nolan Gann	<a href="mailto:u1443598@utah.edu">u1443598@utah.edu</a>
Student Success Advocate	April Ollivier	<a href="mailto:april.ollivier@utah.edu">april.ollivier@utah.edu</a>
Library Instructor	Annika Deutsch	<a href="mailto:u6050934@utah.edu">u6050934@utah.edu</a>

**Course Description**

LEAP 1501: *Social and Ethical Implications of Engineering and Technology* provides students with an understanding of the intersections of society, culture, technology, and values through the mediums of [NAE’s Fourteen Grand Challenges of Engineering](#) and the [United Nations’ Sustainable Development Goals \(SDGs\)](#). First, students will gain a foundational understanding of social science, philosophy, and ethical theories and learn how to apply these disciplines and frameworks to engineering scenarios. Furthermore, they will become familiar with different engineering codes of ethics and learn what it takes to become a virtuous, professional engineer. Second, another major focus of this course is sustainable development. Through the study of the United Nations’ SDGs, students learn how engineering and technology play a major role in inhibiting and promoting sustainable development on both a local and global level.

The course readings, materials, discussions, assignments, and team research project focus on specific issues set out by the Accreditation Board for Engineering and Technology (ABET) adhering to “an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts, an ability to communicate effectively with a range of audiences” and “an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.” (Criteria for Accrediting Engineering Programs 2019-2020). Additionally, this course fulfills both the *Social and Behavioral Science Foundation* (BF) and *sustainability* (SUST) requirements.

This course consists of six units:

- **Unit 1: Introduction (week 1)**
- **Unit 2: Ethics, Engineering, and Technology (weeks 2-4)**
- **Unit 3: Engineering Failure Case Studies (weeks 5-7)**
- **Unit 4: Introduction to Sustainable Development (weeks 8-9)**

- **Unit 5: Global Challenges United Nation’s Sustainable Development Goals #7, 11, 13, and 16 (weeks 10-13)**
- **Unit 6: Team Presentations (weeks 14-15)**

### **Learning Objectives for LEAP 1501**

Upon completion of this course, students will be able to:

#### 1. Engineering and Technology

- Situate engineering and technology within the broader understanding of social and economic processes such as poverty, energy crisis, rapid urbanization, and climate change
- Explain [the Fourteen Grand Challenges for Engineering in the 21st Century](#)

#### 2. Ethics

- Articulate and contextualize main ethical theories and ideas
- Demonstrate a nuanced understanding of professional ethics
- Identify the failure of such ethics in the engineering profession

#### 3. Sustainability

- Demonstrate a strong conceptual understanding of sustainability. Specifically,
  - Define sustainability
  - Explain principles and issues of sustainability and “green engineering” to include [the United Nations' Sustainable Developmental Goals](#)
  - Identify and discuss sustainability issues related to SDG #7 (affordable and clean energy), SDG#11 (sustainable cities and communities), SDG#13 (climate action), and SDG #16 (peace, justice, and strong institutions)
  - Recognize the social and ethical implications of the creation and construction of technology, specifically concerning sustainability standards

#### 4. Critical and Creative Thinking

- Read for main ideas through the use of the Perusall app
- Watch documentaries for main ideas
- Assess issues from different perspectives
- Evaluate arguments and evidence

#### 5. Teamwork

- Collaborate on a large team project
- Negotiate and compromise
- Build leadership skills
- Problem-solve

#### 6. Information Literacy and Library Research

- Effectively use databases in the social sciences, applied sciences, and engineering
- Evaluate research methodologies and Internet sources
- Integrate library resources into a team research project
- Use the IEEE (The Institute of Electrical and Electronics Engineers) citation style

**Prerequisites:** None

## **Objectives of the LEAP Learning Community**

1. Intellectual connections among disciplines, experiences, and perspectives.
2. Reflection and self-assessment for honest introspection, individual voice, and personal development
3. Community connections to campus and society

## **Required Readings and Audiovisual Materials**

**Required Readings:** Except for one book, all readings are available online through **Canvas** → **Course Materials**.

The following book is **available as hard copy but read-only-in-the-library: Marriott Library Level 3, Open Reserve**

- Mulligan, Martin. *An Introduction to Sustainability: Environmental, Social and Personal Perspectives*. 2018. Second Edition. Routledge, New York, NY. (We will read Chapters 2, 6, 8, 9, 10, and 15)

I strongly suggest you scan the chapters you need ahead of time, so you have them ready and available when the readings are due. Due to copyright reasons, I cannot circulate six chapters of one book (but I wanted to avoid having you spend money on books. You may, of course, purchase a copy of this book through Amazon (or elsewhere) if you so choose. If so, make sure to get the second edition).

**Audiovisual materials:** All audiovisual materials are available to view online through Canvas. Simply click on the tab **Course Materials** to gain access. We will watch the following four films:

- *Inside Japan's Nuclear Meltdown* (54 min.)
- *Hurricane Katrina: The Storm that Drowned a City* (56 min.)
- *The Human Scale* (1 hour 30 minutes)
- *Before the Flood* (1 hour 35 minutes)

**Expectations:** In addition to the 3x50-minute in-class meetings every week, each student is expected to spend an average of twice the in-class time performing out-of-classroom activities like reading, preparing questions, writing assignments, etc. This brings the total weekly time investment for this class to roughly 7.5-8 hours or 120 hours for the semester.

**Social/Behavioral Science Designation (BF):** This course fulfills the University of Utah's general education requirement for a BF course. Courses in the social and behavioral sciences introduce students to societal institutions, cultures, and behaviors.

**Sustainability Course Attribute (SUST):** This course fulfills the University of Utah requirement for the sustainability course attribute. Specifically, the four UN Sustainable Development Goals (SDGs) that will be explored in this course are:

- SDG Goal #7: Affordable and clean energy
- SDG Goal #11: Sustainable cities and communities
- SDG Goal #13: Climate action
- SDG Goal #16: Peace, justice, and strong institutions

The student learning outcomes are linked to these SDGs (see learning outcome #3 on page 2). Also, two types of course assessments are tied to the SDGs: five Perusall assignments in which students annotate readings related to SDGs #7, 11, 13, and 16 and a team memo assignment on “Sustainable Living: The Role of Engineering and Technology” (teams will decide which two SDGS to discuss and analyze).

The University of Utah offers an undergraduate certificate in sustainability. The certificate requires students to complete a total of 21 sustainability course credits. To learn more, go to <https://sustainability.utah.edu/undergraduate-certificate/>.

**LEAP 1060**

To receive credit for LEAP 1060, “Methods and Technologies for Library Research” (a 1-credit course), you need to satisfactorily complete at least 80% of the library assignments provided in Canvas. Successful completion of these assignments requires in-class participation in the library sessions folded into the regularly scheduled class time for this course for the academic year (across both the fall and spring semesters). Students will be eligible to receive 1-hour of university credit with a grade of (CR) credit at the end of the spring semester. The hour is not automatic and must be purchased. I will provide you with more information as we approach Spring 2025 semester registration, and you can track your progress in Canvas.

**Grading and Assignments (500 points total)**

All assignment instructions and rubrics are posted to Canvas.

**Individual Assignments** **300 points**

Perusall Homework (10 x 5 pts)	50
3 Check-On Learning Quizzes (3 x 30 pts)	90
Library Class Assignments (5x 6 pts)	30
4 Documentary Response Quizzes (4 x 15 pts)	60
Attendance (see policy below)	30
Peer Evaluations	20
End of Semester Reflection	20

**Team Assignment**

**Sustainable Living: The Role of Engineering and Technology** **200 points\***

Team Research Proposal	25
Team Memo 1: Explain Science and Technology	45
Team Memo 2: Explain Sustainability Connection	45
Team Memo 3: Explain Social and Ethical Implications	45
Team Presentation	40

\*Each member of your team will be given the same grade for each of the team assignments listed above *except* in certain extreme cases. Any group member may receive a lower grade based on absence or lack of contribution to the project.

## Course Requirements and Policies

**Perusall Homework (due by class start: 9:40 AM MST on the following dates: (1) Mon, Aug 26; (2) Wed, Sep 4; (3) Mon, Sep 9; (4) Mon, Sep 16; (5) Mon, Sep 23; (6) Mon, Oct 14; (7) Mon, Oct 21; (8) Wed, Oct 30; (9) Mon, Nov 4; (10) Mon, Nov 11).**

Perusall is a social learning platform that prepares students for class. The platform incorporates a novel e-book reader with collaborative annotation tools to ensure students learn more, come to class prepared, and become more engaged in the learning experience. Throughout the semester, you will use Perusall to annotate **ten** assigned readings before coming to class. (However, you are expected to read all assigned readings, not just those in Perusall, before coming to class). To learn more about how to use Perusall, go to [Perusall Student Support](#).

**3x Check-On Learning Quizzes (Quiz#1 Wed, Sep 18 (covers weeks 1-4), Quiz #2 Wed, Oct 23 (covers weeks 5-8), and Quiz #3 Wed, Nov 20 (covers weeks 9-13)):** The check-on learning quizzes are 30-minute quizzes that will be administered in class. The quizzes are handwritten, and computers and printed notes will **NOT** be allowed. You may bring one double-sided handwritten page of notes with you. Each quiz will be comprehensive. Please bring pencils and erasers to class and write legibly.

If you need accommodations (such as extra time or taking the test on a computer at the testing center), please make sure to go through the proper channels and contact [The Center for Disability and Access](#). *Legally accommodations are not retroactive, so start early!*

**5x Library Classes ((1) Fri, Sep 6; (2) Fri, Sep 20; (3) Mon, Sep 30; (4) Fri, Oct 18; (5) Mon, Oct 28:** For our library research sessions, we will have five classes with our Marriot Library librarian, Annika Deutsch (library classes take place in our regular classroom). The sessions are designed to develop the team project in stages. Points for the library portion of the final grade are based on library assignments (attending library classes counts towards your attendance grade). Please bring your computer to the library classes.

**4x Documentary Response Quizzes (due (1) Sun, Sep 15; (2) Sun, Sep 22; (3) Sun, Nov 3 (4) Thurs, Nov 14 by 11:59 PM MST):** You will be assigned four documentaries to watch before coming to class. After watching each documentary, you will take a quiz (in Canvas) that checks your comprehension.

**Attendance and Absences:** Regular, punctual attendance in this course is required. Attendance for library sessions, final team presentations, and in-class teamwork is also mandatory. Irregular presence and lack of preparation for class will adversely affect your performance and success. Please familiarize yourself with the University of Utah's [Policy 6-100: Instruction and Evaluation](#). Paragraph III.O (Attendance Requirements) states that "The University expects regular attendance at all class meetings (...) Students are responsible for acquainting themselves with and satisfying the entire range of academic objectives and requirements as defined by the instructor (...) Except in cases of sudden illness or emergency, *students shall in advance of the absence* arrange with the instructor to make up assignments" (emphasis added).

**Lateness:** Being late by 15 minutes or more twice counts as an absence.

I understand that sometimes things happen; you might get sick or have to attend to personal or religious affairs. Therefore, you are allowed 3 absences throughout the semester. A doctor's note does not excuse an absence, and you cannot make up any missed class.

Attendance: Number of Absences = Points for attendance grade

0-3 = 30      4 = 27      5 = 24      6 = 21      7 = 18      8 = 15  
 9 = 12      10 = 9      11 = 6      12 = 3      11 or more = 0

**Peer Evaluations (due Friday, December 6 by 11:59 PM):** Upon completion of the team project, you will write constructive peer evaluations for everyone on your team. In your evaluations, you will grade your peers' effort, contribution, and communication. I will calculate your average, which will be your grade. After the grades have been calculated, your peer advisor will send you an email with a list of anonymized comments from your peers.

**End-of-Semester Reflection (due Monday, Dec 9 by 11:59 PM MST):** In your last assignment, you will answer four questions and reflect on what you have learned this semester.

**Team Project, "Sustainable Living: The Role of Engineering and Technology:"** This project requires collaboration, effort, and organization to prepare research, memos, and a final presentation. Any group member may receive a lower grade based on absence or lack of contribution to the project. Project descriptions, assignments, and team designations are available in Canvas. For the team assignments, you will first formulate a research question and then write three team memos in preparation for an end-of-semester team PowerPoint presentation.

Important dates:

- **Team research proposal due Fri, Oct 4 by 11:59 PM MST**
- **Memo 1 due Sun, Oct 27 by 11:59 PM MST**
- **Memo 2 due Sun, Nov 10 by 11:59 PM MST**
- **Memo 3 due Sun, Nov 24 by 11:59 PM MST**
- **Presentations (in class) (two presentations Mon, Nov 25; two presentations Mon, Dec 2; two presentations Wed, Dec 4)**

**Extra Credit (Due in Canvas no later than Wednesday, Dec 11 (11:59 PM MST)):** You may earn up to **twenty** extra credit points. Have a look at the table below to see how and what to submit (The maximum for extra credit is 20 points, so don't submit for more – it will not be granted).

<b>Event or Meeting</b>	<b>Points</b>	<b>How to Submit for Extra Credit</b>
Attend one of librarian Annika Deutsch's workshops in the Marriott Library: <i>How to Work More Effectively As a Small Group</i> (Pick <u>one</u> of these dates and times: 1) Oct 1 <sup>st</sup> , 5-6:30 PM; 2) Oct 4 <sup>th</sup> , 2-3:30 PM; 3) Oct 21 <sup>st</sup> , 5-6:30 PM).	10	To claim the credit, if you attended the workshop, use the textbox within the extra credit assignment to submit a 100-word summary of what you learned. Please also add the date you attended the workshop.
Attend an engineering activity/event during the Fall semester	5	To claim the credit, if you attended an engineering event, use the textbox within the extra credit assignment to submit a 100-word summary of what

		you learned <b>AND</b> upload a picture from the event.
Attend one LEAP activity/event	5	To claim the credit, if you attended a LEAP event, upload a picture from the event.
Schedule and attend a meeting with your peer advisor	5	To claim the credit, if you met with your peer advisor, write the date and time of your meeting in the textbox (I will crosscheck with the peer advisor)
Schedule and attend a meeting with a Student Success Coach for a consultation	5	To claim the credit, if you met with a student success coach, write the date and time of your meeting in the textbox (I will crosscheck with the coach)

\*Extra credit is **NOT** automatic. You must submit summaries/pictures to Canvas to claim the credit

### Grading Scale:

A = 93-100 % (465 - 500 pts)	A- = 90-92 % (450 - 464 pts)	B+ = 87-89 % (435 - 449 pts)	B = 83-86 % (415 - 434 pts)	B - = 80-82 % (400 - 414 pts)
C+ = 77-79 % (385 - 399 pts)	C = 73-76 % (365 - 384 pts)	C - = 70-72 % (350 - 383 pts)	D+ = 67-69 % (335 - 349 pts)	D = 63-66 % (315 - 334 pts)
D - = 60-62 % (300 - 314 pts)	E = 59 % and below (299 pts and below)			

\*Assignments are graded by points, but final grades are assigned by percentage

### Dr. Pedersen's Policies

**Late Work:** Late work will **NOT** be accepted. It is your responsibility to plan out your schedule and your assignments. However, if you find yourself in extenuating circumstances (hospitalization, death of a close relative, natural disaster, etc.) and contact me **BEFORE** the due date, I will work with you to find a solution.

**Religious Practice:** To request an accommodation for religious practices, **contact me at the beginning of the semester.**

**Canvas Notification and Weekly Announcements:** Please make sure you receive Canvas notifications from LEAP 1501. If you are unsure of what your notification settings look like have a look at [How Do I Manage My Canvas Notification Settings](#). Every Sunday you will receive a weekly announcement with all the information you need for the week ahead. Please make sure to read these announcements.

### Do Not:

- **Send assignments to my u-mail.** An assignment sent to my email address will *not* be graded. Sending an assignment to my inbox is not considered an acceptable form of submitting work for a grade. All assignments must be submitted through Canvas as a submission to the appropriate assignment.

- **Send me an email after missing class asking me “What did I miss?”** I do not provide makeup lectures via email. Instead, you can check the weekly announcement and the syllabus to see what you missed or buddy up with a peer and share notes. I am happy to answer questions and help you, but I will not explain what you missed in class via email.
- **Tell me you missed one of the assignments because you had an exam, assignment, presentation, etc. due in another class.** All this is telling me is that you did not prioritize assignments for this class or plan your time accordingly. It is your responsibility to stay on top of assignments and deadlines.
- **Leave Canvas after uploading an assignment without checking that you submitted the correct document.** All too often, students upload blank documents or the wrong assignments. Since I do not accept late work, it is your responsibility to make sure you upload the correct assignment before the deadline.

**Artificial Intelligence:** Unauthorized use of AI technology, such as Chat GBT, will be treated as plagiarism (see section on Academic Misconduct below), and the use of AI is **NOT** permitted in my course. This also includes translation tools such as Papago. I expect all work to be written *by you* in English.

If I suspect the use of AI, at a minimum, the following will happen: 1) your assignment will score a zero, 2) you will be issued a formal warning, and 3) you will be asked to come to my office to explain yourself. As with plagiarism, in severe cheating cases involving AI, I might impose a harsher academic sanction on you such as giving you a failing grade in the class or referring your case to your home college, which could lead to your dismissal from the program.

Do your own work. It’s not worth risking failing the course or being dismissed from your program because of cheating.

**E-mail correspondence and etiquette:** I will typically respond to emails within 24 hours Monday through Friday (and often much quicker). However, I do ask that you follow some minimal guidelines:

- Think of the emails you send to your instructor as **professional communication**. Professional emails are *not* like text messages you send to your friends: they should be polite, concise, and respectful. So, no emojis or text slang: use this as an opportunity to get better at writing professional emails, because chances are you will be writing lots of these in a future job after college.
- **Please use a proper greeting.** This may be formal (e.g., “Dear Professor Pedersen”) or informal (“Hi Louise”).
- **Please sign your e-mail.** All too often I get unsigned e-mails from students with inscrutable email addresses. Please identify yourself to me. These guidelines may be relaxed in obvious cases (e.g., in a string of e-mail replies). I will use similar guidelines in writing you. I am happy to answer student e-mails and tend to respond promptly (within a day).
- **If I receive e-mails that fail to meet the guidelines above, I reserve the right to not respond.** If you send me an unprofessional email or an email that looks like a text message, I may send you a response that asks you to read this section of the syllabus and to write a new email to me that meets the email correspondence and etiquette standards.



### **How to Succeed in my Course:**

1. Attend regularly. Be on time. Repeated tardiness is bad etiquette in a university class.
2. Come to class ready to participate. This class emphasizes discussion and sharing of perspectives. You cannot contribute to the discussions unless you have completed the reading on time.
3. Manage your time effectively.
4. Take notes in class.
5. Cultivate friendships with your peers. Ask for help and support from your peer advisor, student success advocate, and me.

### **Your Responsibilities as a Student in My Class:**

1. Treat the professor, peer advisor, and other students with dignity and respect.
2. Be prepared for class: arrive on time with course readings and/or assignments.
3. Remain alert and focused in class. DO NOT: text, make phone calls, disrupt class in any way, do homework for other classes, pack up early, or sleep.
4. Multitask in a constructive way: listen to others, take notes, participate, and read the board.

**I honor Lauren's Promise: "I will listen to you and believe you if someone is threatening you."** Lauren McCluskey, a 21-year-old honors student-athlete, was murdered on Oct. 22, 2018, by a man she briefly dated on the University of Utah Campus. ***We must all take action to ensure this never happens again.*** Any form of sexual harassment or violence will not be excused or tolerated at the University of Utah.

As your instructor, I promise to:

1. Listen and believe you if someone is threatening you.
2. Represent a safe haven for sharing incidents of sexual assault, domestic violence, or stalking.
3. Change campus culture that responds poorly to dating violence and stalking.

If you are experiencing sexual assault, relationship violence, or stalking, you can take the following actions:

- If you are in immediate danger, call **911**.
- Report it to me, and I will connect you to resources.

### **University Policies and Resources**

**Academic misconduct:** Please make sure you are familiar with the [Student Code](#). For academic misconduct, see Section I.B. Note especially the section **on plagiarism**, which is defined as "the intentional unacknowledged use or incorporation of any other person's work in, or as a basis for, one's own work offered for academic consideration or credit or for public presentation." Note that "[P]lagiarism includes, but is not limited to, representing as one's own, without attribution, any other individual's words, phrasing, ideas, sequence of ideas, information or any other mode or content of expression." The **minimum** sanction for an instance of plagiarism will be a zero on the assignment, but I reserve the right to impose a harsher academic sanction (including a failing grade in the class), and to refer plagiarism cases to the Student Behavior Committee for non-academic sanctions. You should note that I also notify your home college in cases of academic misconduct (which might result in dismissal from the program).

**Content Accommodation Policy:** This course deals with issues that may be sensitive for some students. Please be familiar with the University of Utah's Accommodation Policy. "Students are expected to take courses that will challenge them intellectually and personally. Students must understand and be able to articulate the ideas and theories that are important to the discourse within and among academic disciplines. Personal disagreement with these ideas and theories or their implications is not sufficient grounds for requesting an accommodation. Accommodations requested on such grounds will not be granted. It is the student's obligation to determine, before the last day to drop courses without penalty, when course requirements conflict with the student's sincerely-held core beliefs. If there is such a conflict, the student should consider dropping the class" (from the student handbook, 3b under [Policy 6-100: Instruction and Evaluation, Revision 25.](#) )

**University Safety Statement:** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-2677. You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to review available training resources, including helpful videos, visit [#SAFEU](#)

**Americans with Disabilities Act:** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the [Center for Disability Services](#), 162 Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations.

**Sexual Misconduct:** Title IX of the Civil Rights Act makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status, or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, at 801-585-2677.

**Gender Pronoun and Name Preferences:** Class rosters are provided to the instructor with the student's legal name; however, I am happy to honor your request to address you by an alternate name and/or gender pronoun. Please advise me of this preference early in the semester, so I can ensure the use of your preferred name and pronouns in this space.

In Canvas, please click on the tab **NameCoach** and record how you pronounce your name and add your preferred pronouns.


**Wellness:** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the [Center for Student Wellness](#) at (801) 581-7776.

**Disclaimer:** This syllabus is not a legally binding document and is subject to change to meet pedagogical needs. Please check the syllabus link on Canvas for the most up-to-date version of this document. If I make changes to the document, I will always announce it in class.


## COURSE SCHEDULE

	<b>Unit 1: Introduction</b>
<b>Week 1</b>	<b><i>Introduction to the Course</i></b>
<b>Mon, Aug 19</b>	Welcome to LEAP: Syllabus overview and introductions
<b>Wed, Aug 21</b>	Why Engineers Need Philosophy and Social Science <ul style="list-style-type: none"> <li>• Meet your librarian, Annika Deutsch</li> <li>• How to use Perusall</li> <li>• How to take notes for in-class quizzes</li> </ul> <u>Read:</u> <ul style="list-style-type: none"> <li>• Kaag and Bhatia: “Designs for Living. Why Engineers Need to Become Philosophers”</li> </ul>
<b>Fri, Aug 23</b>	Why Engineers Need Philosophy and Social Science <u>Read:</u> <ul style="list-style-type: none"> <li>• Wetmore, “The Value of the Social Sciences for Maximizing the Public Benefits of Engineering”</li> <li>• Bertrand Russell, “The Value of Philosophy”</li> <li>• <u>Optional</u> - Babbie: “Human Inquiry and Science”</li> </ul>
	<b>Unit 2: Ethics, Engineering, and Technology</b>
<b>Week 2</b>	<b><i>Introduction to Ethics</i></b>
<b>Mon, Aug 26</b>	<u>Read:</u> <ul style="list-style-type: none"> <li>• Driver, from “Ethics: The Fundamentals” read the introduction (p. 1-10)” (<b>Perusall assignment #1 Due by 9:40 AM MST</b>)</li> <li>• Plato, The Republic, Book II</li> <li>• <u>Making Choices: A Framework for Making Ethical Decisions and Introduction to Ethics</u></li> </ul>
<b>Wed, Aug 28</b>	<u>Skim the following websites:</u> <ul style="list-style-type: none"> <li>• <u>Consequentialism, Duty-based Ethics, Virtue-based Ethics, Divine Command Theory, Ethical Egoism, Ethical Altruism</u></li> </ul>
<b>Fri, Aug 30</b>	<u>Read:</u> <ul style="list-style-type: none"> <li>• Johnson, “Can Engineering Ethics Be Taught?”</li> </ul>
<b>Week 3</b>	<b><i>Engineers as Professionals</i></b>
<b>Mon, Sep 2</b>	<b>No class- Labor Day</b>
<b>Wed, Sep 4</b>	<u>Read:</u>

	<ul style="list-style-type: none"> <li>Fledderman, “Professionalism and Codes of Ethics” (<b>Perusall assignment #2 due by 9:40 AM MST</b>)</li> <li>NSPE, Code of Ethics for Engineers”</li> <li>Schwartz, “Engineering Society Codes of Ethics: A Bird’s-Eye View”</li> </ul>
<b>Fri, Sep 6</b>	<b>First Library Class</b>
<b>Week 4</b>	<b><i>Social Context of Engineering</i></b>
<b>Mon, Sep 9</b>	<u>Read:</u> <ul style="list-style-type: none"> <li>Whelchel, “Is Technology Neutral?” (<b>Perusall assignment #3 due by 9:40 AM MST</b>)</li> <li>Hunt, “Technology and Society”</li> </ul>
<b>Wed, Sep 11</b>	<u>Read:</u> <ul style="list-style-type: none"> <li>Wetmore, “Amish Technology: Reinforcing Values and Building Community”</li> </ul>
<b>Fri, Sep 13</b>	<u>Read: <b>The 14 Grand Challenges of Engineering</b></u>
	<b>Unit 3: Engineering Failure Case Studies</b>
<b>Week 5</b>	<b><i>Nuclear Disaster: Fukushima</i></b>
<b>Sun, Sep 15</b>	<b>Movie Response Quiz #1 (<i>Inside Japan’s Nuclear Meltdown</i>, 54 min.) due in Canvas by 11:59 PM MST</b>
<b>Mon, Sep 16</b>	<u>Read:</u> <ul style="list-style-type: none"> <li>Pidgeon, “Complex Organizational Failures: Culture, High Reliability, and Lessons from Fukushima” (<b>Perusall assignment #4 due by 9:40 AM MST</b>)</li> <li>Geist, “<u>What Three Mile Island, Chernobyl, and Fukushima Can Teach About the Next One</u>”</li> <li>Hansson, “Nuclear Energy and the Ethics of Radiation Protection”</li> </ul>
<b>Wed, Sep 18</b>	<b>Check-On-Learning Quiz 1 (Taken in-person during the first 30 minutes of class, covers weeks 1-4. You may bring one page (double-sided) handwritten notes with you. No computers allowed)</b>
<b>Fri, Sep 20</b>	<b>Second Library Class</b>
<b>Week 6</b>	<b><i>Ethical Problem-solving and Emergency Management: Hurricane Katrina</i></b>
<b>Sun, Sep 22</b>	<b>Movie Response Quiz #2 (<i>Hurricane Katrina: The Storm that Drowned a City</i>, 56 min.) due in Canvas by 11:59 PM MST</b>
<b>Mon, Sep 23</b>	<u>Read:</u>

<p>Wed, Sep 25</p> <p>Fri, Sep 27</p>	<ul style="list-style-type: none"> <li>• Young, “Katrina” Too Much Blame, Not Enough Responsibility” <b>(Perusall assignment #5 due by 9:40 AM MST)</b></li> <li>• Picou et al., “Katrina as Paradigm Shift”</li> </ul> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Bullard, “The Wrong Complexion for Protection - Response to Toxic Contamination”</li> </ul> <p>Introduction of the team project (Organization of teams, discussion of instructions and rubrics)</p>
<p>Week 7</p> <p>Mon, Sep 30</p> <p>Wed, Oct 2</p> <p>Fri, Oct 4</p> <p>Fri, Oct 4</p>	<p><i><b>Ethics in Design and Whistleblowing: the Ford Pinto and Theranos Cases</b></i></p> <p><b>Third Library Class</b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• <a href="#">Pinto Madness</a></li> </ul> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Williams, “Elizabeth Holmes and Theranos: A Play on More than Just Ethical Failures”</li> <li>• <a href="#">What We Know (and Mostly Don't) About the Science Behind Theranos</a></li> </ul> <p><b>Team Research Proposal (due by 11:59 PM)</b></p>
<p>Oct 7-11</p>	 <p style="text-align: center;"><b>FALL BREAK</b></p>
<p><b>Unit 4: Introduction to Sustainable Development</b></p>	
<p>Week 8</p> <p>Mon, Oct 14</p> <p>Wed, Oct 16</p> <p>Fri, Oct 18</p>	<p><i><b>Understanding Sustainability</b></i></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• <a href="#">United Nations' Sustainable Development Goals (SDGs)</a></li> <li>• Mulligan, Chapter 2, “Biography of A Concept” <b>(Perusall assignment #6 due by 9:40 AM MST)</b></li> </ul> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Mulligan, Chapter 6, “Sustainability Models and Concepts”</li> </ul> <p><b>Fourth Library Class</b></p>

<p>Week 9</p> <p>Mon, Oct 21</p> <p>Wed, Oct 23</p> <p>Fri, Oct 25</p> <p>Sun, Oct 27</p>	<p><b><i>Environmental, Social, and Personal Dimensions of Sustainability</i></b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Mulligan, Chapter 8 “Environmental Dimensions of Sustainability” <b>(Perusall assignment #7 due by 9:40 AM MST)</b></li> <li>• Mulligan, Chapter 9, “Social Dimensions of Sustainability”</li> </ul> <p><b>Check-On-Learning Quiz 2 (Taken in-person during the first 30 minutes of class, covers weeks 5-8. You may bring one page (double-sided) handwritten notes with you. No computers allowed)</b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Mulligan, Chapter 10, “Personal Dimensions of Sustainability”</li> </ul> <p><b>Team Memo 1 (due in Canvas by 11:59 PM MST)</b></p>
<p><b>Unit 5: Global Challenges: United Nation’s Sustainable Development Goals #7, #11, #13, and #16</b></p>	
<p>Week 10</p> <p>Mon, Oct 28</p> <p>Wed, Oct 30</p> <p>Fri, Nov 1</p>	<p><b><i>SDG #7: Affordable and Clean Energy</i></b></p> <p><b>Fifth Library Class</b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Young and Vanderburg, “A Materials Life Cycle Framework for Preventive Engineering” <b>(Perusall assignment #8 due by 9:40 AM MST)</b></li> <li>• Towler, “The History and Culture of Energy”</li> </ul> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Anastas and Zimmerman, “Design Through the 12 Principles of Green Engineering”</li> </ul>
<p>Week 11</p> <p>Sun, Nov 3</p> <p>Mon, Nov 4</p> <p>Wed, Nov 6</p> <p>Fri, Nov 8</p>	<p><b>SDG#11: Sustainable Cities and Communities</b></p> <p><b>Movie Response Quiz #4 (<i>The Human Scale</i>, 1 hr 20 min) due in Canvas by 11:59 PM MST</b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Mulligan, Chapter 15, “The Urban Challenge” <b>(Perusall assignment #9 due by 9:40 AM MST)</b></li> <li>• Bullard, “Smart Growth Meets Environmental Justice”</li> </ul> <p><b>No In-Class Meeting – Library Zoom office hours with Annika from 9:40 – 10:30 am (Zoom link in weekly announcement)</b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>• Harvey, “The Right to the City”</li> </ul>

<p>Sun, Nov 10</p>	<ul style="list-style-type: none"> <li>Molotch, “The City as a Growth Machine: Toward a Political Economy of Place”</li> </ul> <p><b>Team Memo #2 (due by 11:59 PM MST)</b></p>	
<p>Week 12</p> <p>Mon, Nov 11</p> <p>Wed, Nov 13</p> <p>Thurs, Nov 14</p> <p>Fri, Nov 15</p>	<p><b>SDG #13: Climate Action</b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>Gardiner, “A Perfect Moral Storm” (<b>Perusall assignment #10 due by 9:40 AM MST</b>)</li> </ul> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>Sinnott-Armstrong, “It’s Not My Fault: Global Warming and Individual Moral Obligations”</li> <li>Hiller, “Climate Change and Individual Responsibility”</li> </ul> <p><b>Movie Response Quiz #4 (<i>Before the Flood</i>, 1 hr 35 min) due in Canvas by 11:59 PM MST</b></p> <p>In-class discussion of <i>Before the Flood</i></p>	
<p>Week 13</p> <p>Mon, Nov 18</p> <p>Wed, Nov 20</p> <p>Fri, Nov 22</p> <p>Sun, Nov 24</p>	<p><b><i>CSDG #16: Peace, Justice, and Strong Institutions</i></b></p> <p><u>Read:</u></p> <ul style="list-style-type: none"> <li>Johnson, “Is Social Justice in the Scope of Engineers’ Social Responsibilities?”</li> <li>Riley, “Engineering and Social Injustice”</li> </ul> <p><b>Check-On-Learning Quiz 3 (Taken in-person during the first 30 minutes of class, covers weeks 9-13. You may bring one page (double-sided) handwritten notes with you. No computers allowed)</b></p> <p>Professional presentation strategies: How to present effectively</p> <p><b>Team Memo #3 (due by 11:59 PM)</b></p>	
<p><b>Unit 6: Team Presentations</b></p>		
<p>Week 14</p> <p>Mon, Nov 25</p> <p>Nov 27 + 29</p>	<p><b><i>Presentations</i></b></p> <p><b>Two presentations</b></p> <p>No in-person classes. Happy Thanksgiving!</p>	
<p>Week 15</p> <p>Mon, Dec 2</p>	<p><b><i>Presentations</i></b></p> <p><b>Two presentations</b></p>	

Wed, Dec 4	Two presentations (last class)
Fri, Dec 6	Peer Evaluations (due by 11:59 PM)
	<b>Finals Week</b>
Mon, Dec 9	End-of-Semester Reflection (due by 11:59 PM MST)
Wed, Dec 11	Optional: Extra Credit Assignment (due by 11:59 PM MST)