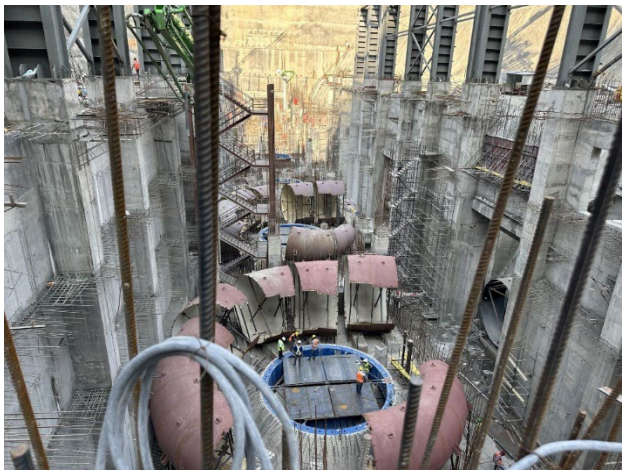
STUDY GUIDE

Energy and Security (NPRE 480 / GLBL 480 / PS 480)

Spring 2026

Prof. Leon Liebenberg

> Energy and security are central to the global transition toward clean-energy solutions. As nations seek to safeguard their energy supplies amid geopolitical and environmental uncertainties, the demand for secure, sustainable energy sources has become a key driver of change. This shift is being accelerated by economic and technological innovation, supported by effective policies, market dynamics, and growing societal pressure. Around the world, clean-energy technologies are advancing rapidly as countries balance the dual imperatives of energy resilience and environmental responsibility.



The 5.2-gigawatt pumped storage (or "water battery") facility being constructed in Kurnool, a remote, hilly district in the southern Indian state of Andhra Pradesh. The $3.5 billion project is part of the Greenko Group's efforts to bring clean energy to India. In 2017 the company also constructed the largest single-location solar farm, spread over 24 square kilometers (9 square miles), or about 3,500 soccer fields. Pumped storage hydroelectric systems are however becoming less reliable due to the negative impacts from climate change (droughts!) that are already under way. Regardless, the integration of this pumped storage scheme and the surrounding solar farm allows for the renewable energy sources (pumped water; solar) to have a much larger capacity factor on the grid.
Image credit: Bloomberg

NPRE 480: Energy and Security

Instructor: Prof. Leon Liebenberg, Energy and Sustainability Engineering (EaSE) program, Department of Nuclear, Plasma & Radiological Engineering, 121 Talbot Laboratory, 104 S. Wright St., Urbana 61801. (E-mail: leonl@illinois.edu; Tel: (217) 300-5496)

Lectures: We will meet at 12:30 p.m. – 1:50 p.m. on Tuesdays and Thursdays in Room 1302 in Everitt Laboratory.

Attendance is mandatory. Students registered for in-person classes ("A" students) are required to attend every lecture in person. Students registered as asynchronous-online ("ONL" students) may watch recordings of the lectures at their own time but submit deliverables at the stated times. Students who registered as synchronous-online ("ONC" students) are required to participate in every lecture via *Zoom*:

Join Zoom Meeting:
https://illinois.zoom.us/j/89450289975?pwd=yHTWc21eV8voadML5muFpWPDkwm1gA.1

Meeting ID: 894 5028 9975

Password: 919590

Your participation in class discussions is essential to help ensure that you benefit maximally from this course. To help you review material, lectures will be recorded and placed on *Canvas* in the NPRE 480 folder.

Electronic devices (including cell phones and laptops) are not permitted during class. To foster a focused, thoughtful, and fully engaged learning environment, the use of electronic devices is *not* allowed during lectures. Our sessions rely heavily on active participation, meaningful discussion, and critical reflection—all of which are best supported when we are fully present and free from digital distractions.

Your queries: You may also submit queries or questions anytime via *Piazza*. Students are encouraged to view their classmates' questions and to participate in course discussions on *Piazza*.

Sign up at: https://piazza.com/illinois/spring2026/npre480/home

Private questions should be directed using the "Private" option on *Piazza*, else the whole class will see your query / request. The teaching assistant or the instructor will respond to your questions as soon as they can.

The teaching assistant(s) and the instructor will attempt to address your queries promptly from Mondays to Fridays (9 a.m. – 5 p.m.) and less promptly after these hours or over weekends.

Instructor's office hour: Professor Liebenberg's office hours will be held online-only via Zoom on Thursdays from 3:00 p.m. to 3:50 p.m. (excluding holidays).

Join Zoom Meeting:
https://illinois.zoom.us/j/83657445949?pwd=uSCfBZ2fXSp7gsBoXWsrDJ2WCt4agv.1

Meeting ID: 836 5744 5949

Password: 001733

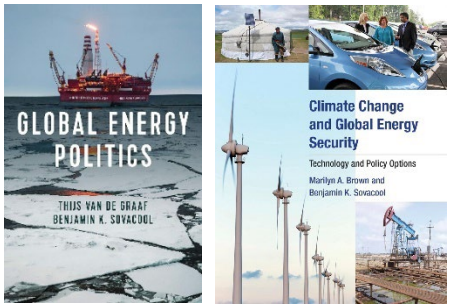
If office hours do not work for you, then you should send the instructor an email clearly stating your difficulty and attaching any relevant information (such as calculations). Allow a few days for the instructor to reply.
Please note that the instructor is also available for 10 minutes after every lecture to take your questions, directly outside of class.

Course webpage: Canvas website: https://canvas.illinois.edu/courses/66126

If you have difficulties accessing Canvas, then please contact consult@illinois.edu, *not* the instructor or TA(s).

Course notes / slides: These will be made available on Canvas a few days before lectures. Notes completed during class will be posted on Canvas immediately after lectures.

Prescribed textbook: None. (Class notes will be provided.)



Recommended reading: The following books which are available in the UIUC Library (or from the Illini Union Bookstore and Amazon.com) provide good background on many of the course topics. Purchase of these books is not necessary but highly recommended for the astute scholar.

1. "Global Energy Politics" by Thijs Van de Graaf and Benjamin Sovacool (Polity Press, 2020): $22 (e-book, paperback).

2. "Climate Change and Global Energy Security. Technology and Policy Options" by Marilyn A Brown and Benjamin K Sovacool (MIT Press, 2011). $26 (e-book, paperback).

Teaching Assistant ("TA"): Your TA will grade your assignments. You will be able to chat online (via *Piazza*) with your TA, Ms. Silvana Tabares, regarding difficulties that you might experience with assignments. The TA will, however, not help you to complete any assignments. You could also attend the TA office hours, as detailed below.

Ms. Silvana Tabares
tabares3@illinois.edu

Office hours: Thursdays, 3 – 4 p.m.

Join Zoom Meeting
https://illinois.zoom.us/j/82171340535?pwd=TzVnZ2p0azFHb2NqS0s1QVlLaWtLUT09

Meeting ID: 821 7134 0535
Password: 480

"Hi everyone, I am a PhD student in the NPRE department. My area of interest is computational physics, focused on neutronics and reactor core simulation and analysis. My favorite course I have taken so far is reactor theory, where I had the opportunity to develop my own neutron transport code. Do not hesitate to reach out if you have any questions!" – Silvana

Course description: What does it mean to have energy security, and what happens when it's at risk? Around the world, people rely on energy to power their homes, businesses, healthcare systems, and transport. But energy insecurity takes many forms, whether it's due to supply disruptions, rising costs, political conflict, environmental concerns, or unequal access. In this course, you'll explore why energy is so central to global stability, and why securing it is more urgent than ever.

You'll build a strong foundation in key energy concepts and data, while exploring how different energy sources—like fossil fuels, nuclear, and renewables—are produced, managed, and debated. But this course goes beyond just the technical side. You'll also learn how energy decisions are shaped by politics, economics, innovation, climate policy, and social justice.

Over 15 weeks, you'll engage in twice-weekly lectures, real-world case studies, and dynamic class discussions. Guest speakers from industry, startups, and government may join us to share their insights. In-person students may also visit an energy facility to see theory in action.

Throughout the course, you'll complete self-directed assignments that encourage creative, entrepreneurial thinking. These projects will sharpen your ability to explain complex energy issues to non-experts and help you practice making smart decisions in uncertain conditions, just like today's energy leaders do. You'll learn to plan ahead, work within constraints, spot new opportunities, and simplify complex problems.

You'll also develop modern communication skills by creating short policy memos, fact sheets, infographics, and other practical tools used by energy professionals. Regular quizzes will help reinforce key concepts, but the heart of this course is active participation and meaningful dialogue.

By the end of the semester, you'll not only understand the challenges of energy security—you'll be ready to help shape its future.

Course Philosophy and Learning Model

NPRE 480 is designed around *depth of engagement rather than frequency of submissions*. The course follows a flipped learning model, but avoids constant low-stakes written tasks that create unnecessary workload or encourage performative compliance. Instead, students are expected to prepare thoughtfully, participate actively, and demonstrate learning through periodic reflective assessments, substantive writing, and team-based projects.

Preparation for class is essential. Rather than annotating notes line-by-line, students will engage with course material through a small set of *rotating preparation and engagement techniques* that promote interpretation, judgment, and dialogue while keeping workload manageable for both students and teaching staff.

Weekly lecture structure

Tuesday: Synthesis and Sensemaking

- Short recap and framing by the instructor
- Structured discussion, jigsaw activities, or case analysis
- Emphasis on connecting pre-class material to broader systems, trade-offs, and real-world implications

Thursday: Application and Integration

- Simulations, debates, role-play, gallery walks, or team coaching
- Emphasis on applying concepts to realistic energy, security, and policy contexts

Preparation and Engagement Methods

Throughout the semester, the following three techniques will be used *in rotation*, depending on the topic and activity. Not every week will use all three.

Option A: **Pre-Class Sensemaking Prompt (Occasional, Light-Touch)**

- Short written response (150–250 words) submitted before class
- Focus on interpretation, critique, or questioning, not summarization
- Graded on a simple completion basis (✓ / ✓– / 0)
- Used selectively, especially in the first half of the semester

Example prompts include:

- Identify one assumption in the notes that deserves scrutiny.
- What idea from the readings most challenges your prior thinking?
- What question would you raise if you were advising a decision maker?

Option B: **Note-to-Discussion Bridge (Ungraded, Ongoing)**

- Students bring one prepared note to class (a question, data point, or quotation)
- Used directly in discussion, jigsaw groups, or gallery walks
- Counts implicitly toward participation
- No submission or grading artifact

Option C: **Cold-Open Micro Prompts (In-Class Only)**

- Brief (2–3 minute) written response at the start of class
- Anchors discussion and surfaces key tensions
- Usually formative; occasionally collected for participation credit

These approaches ensure meaningful engagement with course material while minimizing repetitive tasks and discouraging inappropriate use of generative AI.

NPRE 480 Syllabus – Leon Liebenberg

Schedule: 2 × 80-minute sessions/week
Duration: 15 weeks

Week	Dates	Theme / Focus	Tuesday: Synthesis + Application	Thursday: Rotating Engagement	After Class
1	Tue 20 Jan; Thu 22 Jan	Welcome & Introduction; Energy & Society I	Lecture Notes 1 + Option B → Lightning Briefs + World Energy Map Activity	Gallery Walk – Energy Biographies (Option C opening)	Team sign-up
2	Tue 27 Jan; Thu 29 Jan	Energy & Society II – Markets	Lecture Notes 2 + Option A → Market Fundamentals Case / Entrepreneurial Brainstorm	Simulation Day – Mini Market Game + Discussion	Quiz #1 assigned
3	Tue 3 Feb; Thu 5 Feb	Energy & Security I – Statecraft & Conflict	Lecture Notes 3 + Option B → Nord Stream Case Role-Play	Fireside Conversation – Energy Diplomacy (Option C opening)	Writing #1 assigned; Quiz 1 due
4	Tue 10 Feb; Thu 12 Feb	Energy & Security II – Geopolitics	Lecture Notes 4 + Option A → Mini-Debate	Workshop – Mini-Project #1 Preparation	Quiz #2 assigned; Mini-Project #1 assigned
5	Tue 17 Feb; Thu 19 Feb	Energy & Economy I – Investment	Lecture Notes 5 + Option B → ROI / LCOE Workshop	Gallery Walk – Investment Pitches (Option C opening)	Quiz 2 due
6	Tue 24 Feb; Thu 26 Feb	Energy & Economy II – Growth & Efficiency	Lecture Notes 6 + Option A → Dialogue + Data Visualization	Simulation Day – Macro Trade-Offs	Quiz #3 assigned; Mini-Project #1 due
7	Tue 3 Mar; Thu 5 Mar	Energy & Environment I – Climate Impacts	Lecture Notes 7 + Option B → Carbon Footprint Challenge	Fireside Conversation – Climate Policy (Option C opening)	Writing #1 due; Quiz 3 due
8	Tue 10 Mar; Thu 12 Mar	Energy & Environment II – Governance & Justice	Lecture Notes 8 + Option A → Jigsaw Activity	Workshop – Policy Infographics	Quiz #4 assigned; Mini-Project #2 assigned
—	Mar 14–22	Spring Break	No class	No class	—
9	Tue 24 Mar;	Energy & Justice I –	Lecture Notes 9 + Option B → Poster / Fact-Sheet Workshop	Gallery Walk + Documentary Reflection (Option C)	Quiz 4 due; Writing #2 assigned

	Thu 26 Mar	Access & Activism			
10	Tue 31 Mar; Thu 2 Apr	Energy & Justice II – Rights & Displacement	Lecture Notes 10 + Option B → Guest Talk + Debrief	Simulation Day – Justice Negotiation Game	Mini-Project #2 due; Quiz 5 assigned
11	Tue 7 Apr; Thu 9 Apr	Energy Tech & Innovation I	Lecture Notes 11 + Option A → Design Sprint (En-ROADS intro)	Fireside Conversation – Innovation Leaders	Quiz 5 due
12	Tue 14 Apr; Thu 16 Apr	Energy Tech & Innovation II – Transitions	Lecture Notes 12 + Option B → Structured Debate	Workshop – Mini-Project #3 Drafts	Quiz #6 assigned; Mini-Project #3 assigned
13	Tue 21 Apr; Thu 23 Apr	Energy & Policy I – National Approaches	Lecture Notes 13 + Option A → En-ROADS Carbon Pricing Game	Gallery Walk – Country Policy Displays	Quiz 6 due
14	Tue 28 Apr; Thu 30 Apr	Energy & Policy II – Capstone Simulation	Lecture Notes 14 + Option B → Capstone Workshop	Full En-ROADS Run + Team Debrief	Quiz #7 assigned; Mini-Project #3 due
15	Tue 5 May	Wrap-Up & Awards Ceremony	Option C → Storytelling Circle + Recognition	—	Writing #2 due; Quiz 7 due

Option A: Pre Class Sensemaking Prompt (Occasional, Light Touch)
Option B: Note to Discussion Bridge (Ungraded, Ongoing)
Option C: Cold Open Micro Prompts (In Class Only)

> In 2022, one in 25 cars sold was electric. In 2025, it was one in five—and by 2030, two in three in leading markets. By 2040, global oil demand from cars will drop sharply as EVs take over.

Tesla vehicles at the company's Fremont, Calif., factory. Image credit: Noah Berger/Associated Press

Assessment Overview

This course is available as a 3-credit or 4-credit option. Both versions offer rich interdisciplinary learning about the relationships between energy, security, society, innovation, and policy. However, the 4-credit option is designed for graduate students or advanced undergraduates seeking greater depth and specialization.

3-Credit Hour Students: Core Course Expectations

Component	Description	Weight
Individual Writing Assignments	Two assignments: (1) *Energy & Me* reflective essay, (2) *Policy Brief* for a decision-maker	30%
Team-based Mini-Projects	Three collaborative mini projects: (1) *Infographic*, (2) *Case Study Analysis*, (3) *Design Challenge Pitch*	30%
Bi-weekly reflection quizzes	Short open-ended and multiple-choice questions to reinforce key ideas and real-world connections	30%
Discussion Participation	Active involvement in structured discussions (in-person or online), including peer feedback	10%
		100%

4-Credit Hour Students: Core Course Expectations

Students enrolled for 4 credit hours will complete all assignments required of 3-credit hour students, plus the advanced deliverables and responsibilities shown below:

Component	Description	Weight
Individual Writing Assignments	Two assignments: (1) *Energy & Me* reflective essay [##], (2) *Policy Brief* for a decision-maker [#]. [##] + an additional *video*, which summarizes the essay. This will count 20% of this assignment's total grade. [#] + *an extended policy brief:* Add 1000 words comparing 2 policy or technology pathways, supported by at least 2 peer-reviewed academic sources. This will count 20% of the Policy Brief grade.	30%
Team-based Mini-Projects	Three collaborative mini projects: (1) *Infographic*, (2) *Case Study Analysis*, (3) *Design Challenge Pitch* *Technical Appendix or Market Memo:* Submit 2 pages of technical analysis or market evaluation as a supplement to each of the three mini projects. These will count 20% of mini project grades.	30%
Bi-weekly reflection quizzes	Short open-ended and multiple-choice questions to reinforce key ideas and real-world connections *Advanced Reflection Questions,* exploring global energy policy, modeling ethics, or technology adoption dilemmas. These will count 20% of the bi-weekly quiz grades.	30%
Discussion Participation	Active involvement in structured discussions (in-person or online), including peer feedback *Muddy Points and Possible Explanations:* Submission of a list of "muddy points" (unclear or confusing topics from the course), along with possible explanations or answers. This component will count for 20% of the overall discussion participation grade.	10%
		100%

WRITING ASSIGNMENTS (30% Total)

These writing assignments will be performed *individually*, i.e., solo.

Writing Assignment 1: "Energy & Me" – Reflective Essay (15%)

- **Due:** Week 7
- **Length:** 800–1,300 words
- **Purpose:** Connect course themes to personal, community, or professional experience.
- **Prompt:** How has your life been shaped by access to, or lack of, secure and sustainable energy? What energy issues do you care most about, and why?
- **Scaffolding:** To guide you, you will receive a template and example essays
- **Deliverables:** Final essay + self-assessment rubric.

Writing Assignment 2: "Policy Brief to a Decision Maker" – Persuasive Writing (15%)

- **Due:** Week 15
- **Length:** 1,200–1,500 words
- **Purpose:** Practice persuasive, audience-aware communication on an energy issue.
- **Prompt:** Choose a topic from the course (e.g., nuclear proliferation, energy poverty, or energy innovation), and write a brief directed at a policymaker (e.g., a city mayor, governor, or international agency) advocating a specific energy policy or action.
- **Support:** You will receive guidelines on tone, structure, and evidence use, as well as how to write for non-expert audiences.
- **Deliverables:** Brief + optional infographic.

MINI-PROJECTS (30% Total)

You will be assigned to a team (ideally, 3 members per team). Each team will complete a mini project based mainly on qualitative analyses, which might include some straightforward quantitative work. Mini-project deliverables will usually be due on a Monday evening, as indicated in the "Assignments" folder on Canvas. Mini-projects are cumulative in skills, not content. Each emphasizes synthesis, communication, and professional judgment.

Mini-Project 1: "Mapping the Energy Landscape" – Infographic & Executive Summary (10%)

- **Due:** Week 6
- **Objective:** Explore the global and local dynamics of a specific energy source (coal, solar, uranium, etc.)
- **Process:** Each team member researches one aspect (e.g., technological, economic, environmental, political), then the team synthesizes findings into an infographic.
- **Deliverables:** Team infographic + 1-page executive summary

Mini-Project 2: "Case Study Analysis – Energy Conflict or Innovation" (10%)

- **Due:** Week 10
- **Objective:** Analyze a real-world case involving energy conflict (e.g., US involvement in Venezuela; Russia–Ukraine pipeline war) or innovation (e.g., Morocco's solar farms).
- **Deliverables:** 5-minute video-recorded team presentation + PowerPoint annotated slides

- **Support:** You will be provided with a case study template and a bank of suggested cases

Mini-Project 3: "Design Challenge – Energy Solution Pitch" (10%)

- **Due:** Week 14
- **Objective:** In response to a real-world prompt (e.g., energy justice in rural India, decarbonizing Illinois), teams must design a feasible, innovative solution. Evaluate the impact of that solution using the En-ROADS simulation or other appropriate online simulation tool.
- **Deliverables:** 5-minute pitch + two-page proposal document + EN-ROADS simulation results
- **Support:** Students may attend instrctor's of TA's office hours for support

BI-WEEKLY REFLECTION QUIZZES (30% Total)

- **Frequency:** Every other week, 7 quizzes in total
- **Format:** Online ("take-home"), short-answer, multiple choice, with an open-ended question
- **Content:** Reflective + knowledge checks tied to flipped materials (e.g., "What idea from this week most surprised you? Why?")
- **Goal:** Low-stakes check-ins to encourage synthesis and offer feedback on conceptual gaps. These are graded primarily for thoughtfulness and engagement, not polish.

DISCUSSION PARTICIPATION (10% Total)

Participation reflects *professional engagement*, including:

- Preparedness for discussion
- Contributions during in-class activities or simulations
- Constructive peer feedback
- Respectful dialogue on complex and sensitive topics

These small assignments will take the form of "Option A", "Option B", or "Option C" assignments, explained on page 5. *Quality matters more than quantity*. Online students participate through structured asynchronous discussions aligned with weekly themes.

Artificial-intelligence searches can require 10 times the computing power of regular internet searches. Ready access to the vast amounts of electricity needed to keep AI data centers running is becoming a sustainability challenge for companies. Image credit: SeongJoon Cho/Bloomberg News

Peer-evaluations of Team Performance: Your team's success depends on everyone doing their part. While your team will receive one shared grade for each assignment, you can highlight teammates who worked especially hard—or raise concerns about unequal participation—through peer evaluations. This helps keep things fair and ensures accountability.

Each team member will *anonymously* rate the contributions of the others. If there are *n* team members, each team member will have a total of $(n-1)\times 100$ points to assign to the other team members. You will be able to assign a maximum of 130 points and a minimum of 70 points per person. So, if your team comprises three members $(n=3)$, you must allocate a *total* of $(3-1)\times 100 = 200$ points to the other two members of your team.

This system helps reward those who go above and beyond, and fairly reflect if someone didn't do their share.

To prevent surprises at the end of the semester, teams will complete peer evaluations after each of the three mini-projects. You'll also be given a *team agreement* template to fill out before starting your first project. In it, you'll outline how you plan to work together and how you'll evaluate each other's contributions.

Peer evaluation scores will be used to adjust your individual score. Here's how it works:

- Your average peer score will be divided by 100 to get a *multiplier.*
- Your final score = *team score* × your *multiplier*.

Examples:

- If your teammates give you an average score of 100, your multiplier is 1.0, and you'll get the full team score.
  → Team score = say, 94% → Your score = 94%
- If your average score is 80, your multiplier is 0.8.
  → Team score = say, 94% → Your score = 75.2%

If your average score is 120, your multiplier is 1.2.
→ Team score = say, 94% → Your score = 112.8%

Renewable energy and energy security

Solar and wind are already the cheapest sources of new electricity generation in about 85% of the world—and their costs are expected to fall another 25% to 50% by 2030 if current trends continue.

In response to recent geopolitical tensions, many Western governments are working to diversify supply chains in strategic sectors such as semiconductors and clean energy. This has led to a surge in domestic incentives for manufacturing electric vehicles and renewable energy components. In the U.S., for example, tax credits are now tied to local production: electric vehicles must be assembled in North America to qualify for consumer subsidies.

Western Spirit wind turbines sit idle in a roadside field by Highway 54 in Torrence County, New Mexico. Image credit: The Wall Street Journal

Installing solar panels at Adani Green Energy's Renewable Energy Park in India. Photo: Rafiq Maqbool/Associated Press

> The International Energy Agency (IEA) has noted that the transition to clean energy will cost $12 trillion less than a "business as usual" scenario, which projects the economics of future energy demand and supply taking account of established and planned policies and regulations, but not more ambitious plans needed to achieve net-zero emissions.
>
> When the IEA models those more ambitious pathways, capital costs to fund a shift to clean energy are sometimes higher in the near term. But continuing savings from avoided fuel costs fully support the investment, even in today's higher interest-rate environment. In short, saving the planet is cheaper than destroying it.

Ursula von der Leyen, president of the European Commission, unveiling the Green Deal Industrial Plan. The European Green Deal, Australia's Rewiring the Nation, and India's Green Hydrogen Mission are policy responses to the US's Inflation Reduction Act that are attempting to accelerate the pace of change and secure a portion of the prize for their own economies. Image credit: Valeria Mongelli/Bloomberg News

OTHER COURSE AND UNIVERSITY RULES / POLICIES

Grade appeal policy: If you wish to appeal your grade on a take-home assignment (such as a quiz), mini project, or class participation exercise, you must submit to the instructor a written grade appeal request within one week (7 days) of when the assignment score was posted on Canvas. After this period, all grades are considered final.

Grade appeals for any assignment should be directed to the instructor via email at leonl@illinois.edu. The appeal must include:

- A clear statement of your grade concern.
- A justification of how many points you believe you deserve for the specific question(s) in question.

In the event of appeal of a mini project grade, the appeal process must be followed by the entire team. So, when sending your appeal to the instructor, be sure to copy all your teammates and ensure that your teammates are in accord with the appeal. Incomplete, incorrectly addressed, or vague appeals will not be considered.

Late work:

a. Mini-project deliverables must be submitted on time to ensure the effectiveness of the peer feedback process. Late submissions will not be accepted, and no make-up assignments will be provided. Any late or missing submission will receive a grade of 0%—applied to all members of the team.
   Teams have several weeks to plan and execute their work, so it's important not to leave tasks until the last moment. Teams should plan thoroughly and have contingencies in place to handle situations where a team member may be unable to contribute due to extenuating circumstances, such as illness.
b. Late quizzes or writing assignments or non-completion of class participation exercises will receive a 0% grade. Students will have several days to complete take-home assignments, and solutions will be posted after the submission deadline passes.
c. Extensions for take-home assignments or class participation deadlines may be granted at the instructor's discretion, provided the student gives advance notice by email—except in cases of emergency. Valid reasons for requesting an extension include, but are not limited to:
   i. serious illness, serious injury, or death in the student's *direct* family (not grandparents, uncles, or cousins, for instance);
   ii. birth of a child for which the student is identified as a parent on the birth certificate;
   iii. required duty in the U.S. military (active-duty, reserve, or in a National Guard unit activated by the President or a governor), required service in a foreign military organization acting in concert with the United States, or service under provisions of the Volunteer Emergency Worker Job Protection Act;
   iv. participation in, or travel to, an obligatory AFROTC, NROTC, or ROTC event;
   v. participation in, or travel to, varsity or DRES-sanctioned athletic events (excluding fencing, bowling, and other club sports);
   vi. participation in, or travel to, an organized extracurricular activity sanctioned by the College of Engineering or one of its departments, for which a full-time or emeritus

faculty member of the College of Engineering attests that the student's participation is essential;

vii. observance of a religious holiday;

viii. any excuse allowed by the UIUC for students participating in online learning.

If the student was so seriously ill or injured as to be unable to communicate their intentions to the instructor prior to the beginning submission deadline, the advance notification requirement will be waived if the student subsequently provides satisfactory documentation of such incapacitation. The student will do well to also reach out to an emergency dean in the Office of the Dean of Students to enquire the available care resources to help you navigate your challenge. In these circumstances, students should also contact their advisor.

In those cases where advance notification of lateness or non-submission has been provided, or where such notice has been waived according to the provisions of the second sentence of the above paragraph, late submissions of non-submissions will be classified as unexcused unless the student provides satisfactory after-the-fact documentation, as indicated below.

For illness or injury of the student, a satisfactory letter stating that the student was medically unfit to complete the quiz by the submission deadline must be provided by an appropriate medical practitioner (C.N.P., D.D.S., D.M.D., D.O., D.P.M., M.D., O.D., or P.A.) after the quiz submission deadline. *Medical bills, prescriptions, e-mail or letters from friends or relatives, letters from naturopaths, chiropractors, psychologists, and mental health counselors, "visit slips" from McKinley Health Center, and records of calls to McKinley Health Center's Dial-a-Nurse program (with or without endorsement by an "emergency dean" in the Office of the Dean of Students) are among the types of documentation that will not be accepted.*

For serious illness, serious injury, or death in the student's family, the student's relationship to the ill, injured, or deceased party must be established, along with documentation of the illness, injury, or death.

For birth of a student's child, a photocopy of an original birth certificate, showing the student as a parent, is required.

For military duty, copies of valid military orders are required.

For participation in or travel to varsity or DRES-sanctioned athletic events or AFROTC/NROTC/ROTC events, a satisfactory letter from the Division of Intercollegiate Athletics, DRES, or the commanding officer of the detachment is required.

For participation in, or travel to, an organized extracurricular activity sanctioned by the College of Engineering or one of its departments, a satisfactory letter from the faculty sponsor is required.

Independent work: The work you submit in this course, in individual or team assignments, must reflect exclusively the effort of those listed in the submitted materials and must not come significantly from the work of others. You are encouraged to study and discuss the course materials and assignments with your peers. But you are responsible for ensuring that you follow

the rules laid out in this study guide and in the University of Illinois' Academic Integrity Policy. Also see *Academic Integrity* on page 17 of this study guide.

Communication etiquette: We welcome communications concerning possible errors, or constructive suggestions about the materials. Please do not contact us to request increases in your assigned grade, outside of errors in grading. All class communications will use your UI NetID email; do not use any alternate such as gmail as such mail will be ignored.

Use of Generative AI Technology

In this class, you will be engaging with readings, analyzing sources, synthesizing information, and sharing your thoughts through writing. AI can help with some scholarly tasks, but not all. The policies below will help you gain key scholarly skills while using AI ethically and thoughtfully. Please keep in mind that this course policy may be different from your other courses. Unauthorized uses of AI in this course will be considered a violation of the code of academic conduct.

If you are unsure if you can use AI for a course-related task, please email your instructor.

You are allowed to use generative AI tools such as, and others to help you learn. These tools can explain concepts, give you extra practice, and help clarify things you're unsure about. However, you must use them carefully and responsibly.

AI tools (e.g., ChatGPT, Microsoft Copilot/Bing Chat, Google Gemini, etc.) often give incomplete, incorrect, or misleading answers, especially when it comes to advanced reasoning or technical calculations, which are common in this course. To spot these mistakes, you need to already understand the topic well, like a qualified instructor or experienced engineer would. Since students are still learning, it's easy to accept wrong answers as correct, which can seriously harm your learning or even teach you false information.

Permitted Uses of AI (for Learning, Not for Graded Work)

You may use AI tools in these two ways:

1. **As a personal tutor**
   You can ask the AI to explain concepts, break down techniques step by step, list key ideas, give extra examples, transcribe speech to text to create a rough draft, or create self-test questions for you like in this example.
2. **As a feedback tool**
   You can ask the AI to review your work, point out possible mistakes, or suggest how to improve your explanations or calculations.

If an assignment *does* allow AI use, you must:

- Cite your AI use properly, preferably using APA style. This includes the text of your prompt and a reference to the tool used (e.g., ChatGPT); see "Documenting Your Use of AI" below.
- Do not cite AI as a source of facts. AI can invent information. Always verify facts and cite the original sources they come from.

Below are examples of commonly used tools. Keep in mind that accuracy and privacy settings vary from tool to tool:

- Chat Illinois
- ChatGPT 4.0mini (free) or 5.0 (subscription)
- Google Doc's "Help me write" feature (free with agreement to participate in Labs)
- Google Doc's Text-to-Speech tool

AI Use That is Not Allowed

Although generative AI can be a helpful writing tool, it can undermine the ways that you engage with the material in this course. In this class, the following behaviors are prohibited:

- **Use AI to generate answers or solutions for graded questions** in homework, mini-projects, or class participation exercises. Everything you turn in must be your own original thinking and effort. You must not include AI-generated solutions or text, even if you edited them. (Most assignments will include an honor code statement to remind you where use of AI is prohibited.)
- **Present AI-generated content as your own without citation**
    - Why? When uncited, presenting generative AI outputs as your own ideas can be considered plagiarism by "representing the words, work, or ideas of another as your own." This is considered a violation of the academic code of conduct.
- **Translate text**
    - Why? Language acquisition is a key skill for this course, so using AI to translate text will undermine your ability to write and speak the language.
- **Include personally identifiable or sensitive information about yourself, your instructor, or your classmates in AI prompts**
    - Why? Some (but not all) AI tools use the information that you provide to further train the models. Including sensitive information like your name or address can compromise your safety and privacy.
- **Include sources cited by AI without reviewing them**
    - Why? Because GPTs can hallucinate sources, they can inadvertently lead to fabrication, which the Provost's Office defines as "the falsification or invention of any information, including citations." This is also considered a violation of the academic code of conduct.
- **Rely exclusively on AI-generated summaries of content**
    - Why? Large language models know which words are likely to appear together, but they don't understand the meaning of the words. This means that LLMs can sometimes create summaries that are inaccurate. If you use an AI tool to summarize material that you want to include in one of your assignments, you must also read the source and evaluate the quality and accuracy of the article. You are also expected to identify which parts of the article are relevant to your own interests.

- **Rely exclusively on scholarly articles or resources suggested by AI**
    - Why? GPTs are pretrained, so they don't always have access to the latest information. Some generative AI tools can search the internet, but they can point you to sources that are inaccurate or incomplete. The library catalog or a subject guide offers access to reliable information and a wider range of sources.

If you are unsure if you can use AI for a course-related task, please email your instructor.

Documentation and Citation of AI Use

If you use AI tools in your learning:

- **Keep a record**: Save or log the prompts you used, the AI's responses, and how you used them.
- **Be ready to share this record** if your instructor asks.
- **Be prepared to explain your work**.
  Your instructor may ask you to explain your submission in person or in writing. If you can't explain it clearly, you may receive a score of zero and could be reported for academic misconduct.

Documenting Your Use of AI

Ingredients of a good AI statement: Documentation and citation are vital parts of good scholarship. The citation practices below promote transparency while also showcasing how you reviewed and engaged with AI-generated content.

For short assignments: If you use AI-generated content in a discussion post or email, a short label at the end of the post will meet the requirements for transparent use. Here's an example:

Includes content generated by ChatGPT

Citing AI: For the assignments that require a bibliography, you are expected to cite any tools that you used to generate and review your written work. Here's an example of how to properly format these citations using the APA style:

APA: OpenAI. (2026). ChatGPT (Mar 14, 2025 version) [Large language model]. https://chat.openai.com/chat

MLA: "Write a civil war letter from the point of view of a dying 3D printer." prompt. *ChatGPT*, 13 Feb. version, OpenAI, 8 Mar. 2023, https://chatgpt.com/share/6fe6d8a3-23f1-42b2-89c7-fd938929198b

Chicago: ChatGPT, response to "Pretend that you are a Victorian scientist. Give me 5 names for mythical creatures that have been recently observed.," OpenAI, March 7, 2023. https://chatgpt.com/share/ef6bd888-072a-4489-84d6-36a396f5073e.

For tools that do not generate a link to chat conversations, you must provide screenshots or transcripts of the conversation as supplemental files.

Check out the links below for more detailed guidance.

- *APA Style Blog:* How to cite ChatGPT

- *MLA Style Center:* How do I cite generative AI in MLA style?
- *The Chicago Manual of Style Online:* Citation, Documentation of Sources, ChatGPT

AI Reflection: In addition to citing AI, assignments that require a bibliography must also include a brief statement about how AI influenced your writing process. This can be formatted as a separate section at the end of your paper. The reflection must describe which tools you used for specific writing tasks, even if you did not incorporate generated content into your work. You can also describe the steps you took to review generated content.

This statement helps me understand your thought process and evaluate your work. Here's an example:

> *In this assignment, I used Google Doc's voice typing tool to create a rough draft. I asked ChatGPT 4.0 on October 5, 2025 to ask me questions about my essay until I asked it to stop. This helped me realize that I wanted to write about Mary Shelley's* Franken-stein *and monstrosity. I used Google's Gemini to suggest sources and search terms. I then used those search terms to help me find material in the library's databases. I used Microsoft Copilot on October 6, 2024 to format my bibliography in MLA style.*

Final Notes on AI and Academic Integrity: Misusing AI tools, by submitting AI-generated work or using AI when it's not allowed, is a violation of academic integrity. Any suspected misuse will be investigated and may result in penalties under the Illinois Student Code. Please read the University of Illinois System's Generative AI Guidance for Students to learn more about your responsibilities.

Teamwork: Effective teamwork requires empathy and respect. You should be willing and able to 'bend' your minds to recognize where others are coming from and what is important to them, and then to 'blend' with them, moving in a unified direction. You will learn techniques to be more receptive and connected, and to have greater influence whilst accommodating others. Rather than opposing or agreeing with other people, you will learn how to accept and acknowledge the other's position until you can understand what is important about it. This requires a willingness to flex, bend, and search to understand someone else's perspective. Once you understand their perspective, you can pivot and create an opening for that person to understand what is important to you.

Team members will communicate with each other using social media platforms of their own choosing. Historically, students enjoy collaborating using the following platforms: Discord, Zoom, Google Docs, WeChat, GroupMe, and Miro. You and your teammates should soon agree on your chosen method of online collaboration and then promptly get into that routine.

It is strongly suggested that teams use roving team leaders. For instance, a student could be team leader for the first mini-project, followed by another student leading the next mini-project, and yet another team member leading the third mini-project. This will help ensure that no single person dominates the team's actions.

Assigned team members will remain unchanged for the duration of the semester. Teams should however note that they must accommodate late-registered students into their teams, as directed by the instructor or TA. Teams may also have to negotiate lost team members as some students might drop the course. So, although ideal team sizes are 3 students, this number might become less (i.e., 2 students) or perhaps even more (i.e., 4 students) per team; in these cases, small teams might have to merge with other small teams and/or large teams might have to be split. The instructor and TAs

will do their utmost to minimally disrupt existing teams. The full cooperation of every student is expected when forming or changing teams.

Grading the work of large teams and small teams: When grading the mini-projects of small teams (say, with two team members), we expect the same quality (and correctness) of work compared to larger teams (say with four team members); but, for smaller teams we of course do not expect the same quantity of work than that of a larger team. Conversely, we expect the same quality of work from a large team compared to anyone else; however, we expect a greater quantity of work from a larger team than a smaller team.

Uncooperative team members: In this engineering class, effective teamwork is paramount for successful collaboration and project completion. Students are encouraged to actively engage in open communication, share diverse perspectives, and contribute their unique skills to foster a collaborative and innovative environment. However, should any student fail to cooperate with their team or disrupt the collaborative process, appropriate measures will be taken, including intervention by the instructor, potential reassignment of team roles, and, if necessary, disciplinary actions in accordance with the class policies. This ensures a fair and conducive learning environment that promotes the development of both technical and interpersonal skills crucial for success in the field of engineering.

Communication etiquette: We welcome communications concerning possible errors, or constructive suggestions about the materials. Please do not contact us to request increases in your assigned grade, outside of errors in grading. All class communications will use your UI NetID email; do not use any alternate such as gmail.

If you believe that an assignment has been incorrectly graded, communicate this with the instructor within 5 working days after the assignment has been handed back to you. After that period, your assignment will not be regraded, and your grade will remain unchanged.

Most Valuable Players (MVPs): As mentioned, you should state all your queries via Piazza (or Canvas), not via email. Piazza is configured to allow any student to post anonymously to their classmates whenever they prefer. In each discussion thread, different anonymous posters are automatically differentiated with pseudonyms to avoid confusion. The instructor invites you all to help answer your classmate's Piazza questions. The course assistant and the instructor will keep track of each time a student suitably answers a fellow student's Piazza question. At the end of the semester, we will tally all the results to see which students *consistently* and *significantly* helped their fellow classmates the most. Those winning students will each receive a bump of 1% in their final grade! Those winning students will also win the "Most Valuable Player" certificates that will be awarded at the end of the semester. We encourage the students in our class to make the most of this opportunity. This helps you to learn from each other's understanding of the course and increase your grades! And, as you answer the questions posted by your fellow classmates, you will realize that it also betters your own understanding of any concept.

The instructor reserves the right not to issue any MVPs in the event of non-performance by class members.

Note: When the course assistant or instructor award "good post" awards on Piazza, which will eventually be tallied to give us the MVPs, they will use the following criteria:

- Does the question or the answer clarify a technical (not class-administrative) issue which was vague or confusing in the class instructional materials (lecture announcements and syllabus)?
- Does the question or the answer demonstrate unique and thoughtful engagement with the course material?
- Is one student going out of their way to clarify something from the lecture to another student?
- Does reading what the student wrote make you excited to learn more about the energy systems?
- Other: (New justification which we can apply retroactively).

Final grade

At the end of the semester, letter grades are determined based on composite numerical scores, weighted as previously described. The instructor does not have a predetermined "target" grade distribution, and it may vary significantly from semester to semester. Additionally, there is no "curving" of grades in this class.

Grades will be rounded to the nearest whole number. For example, a final grade of 93.2% will be rounded down to 93%, while a final grade of 93.6% will be rounded up to 94%.

Letter grades at semester's end

Grade meaning	**Refined letter scale**	**Numerical scale of marks**
Excellent	A+	97 to 100
	A	94 to <97
	A-	90 to <94
Good	B+	87 to <90
	B	84 to <87
	B-	80 to <84
Adequate	C+	77 to <80
	C	74 to <77
	C-	70 to <74
Marginal	D+	67 to <70
	D	64 to <67
	D-	60 to <64
Inadequate	F	<60

Teamwork: Effective teamwork requires empathy and respect. You should be willing and able to 'bend' your minds to recognize where others are coming from and what is important to them, and then to 'blend' with them, moving in a unified direction. You will learn techniques to be more receptive and connected, and to have greater influence whilst accommodating others. Rather than opposing or agreeing with other people, you will learn how to accept and acknowledge the other's position until you can understand what is important about it. This requires a willingness to flex, bend, and search to understand someone else's perspective. Once you understand their perspective, you can pivot and create an opening for that person to understand what is important to you.

Team members will communicate with each other using social media platforms of their own choosing. Historically, students enjoy collaborating using the following platforms: Discord, Zoom,

Google Docs, WeChat, GroupMe, and Miro. You and your teammates should soon agree on your chosen method of online collaboration and then promptly get into that routine.

It is strongly suggested that teams use roving team leaders. For instance, a student could be team leader for the first mini-project, followed by another student leading the next mini-project, and yet another team member leading the third mini-project. This will help ensure that no single person dominates the team's actions.

Assigned team members will remain unchanged for the duration of the semester. Teams should however note that they must accommodate late-registered students into their teams, as directed by the instructor or TA. Teams may also have to negotiate lost team members as some students might drop the course. So, although ideal team sizes are 2 students, this number might become more (i.e., 3 students) depending on the number of students in class. In some cases, students joining the course late will be asked to merge with existing etams. The instructor and TAs will do their utmost to minimally disrupt existing teams. The full cooperation of every student is expected when forming or changing teams.

Grading the work of large teams and small teams: When grading the mini projects of small teams (say, with two team members), we expect the same quality (and correctness) of work compared to larger teams (say with three team members); but, for smaller teams we of course do not expect the same quantity of work than that of a larger team. Conversely, we expect the same quality of work from a large team compared to anyone else; however, we expect a greater quantity of work from a larger team than a smaller team.

Uncooperative team members: In this class, effective teamwork is paramount for successful collaboration and project completion. Students are encouraged to actively engage in open communication, share diverse perspectives, and contribute their unique skills to foster a collaborative and innovative environment. However, should any student fail to cooperate with their team or disrupt the collaborative process, appropriate measures will be taken. These measures include intervention by the instructor, potential reassignment of team roles, and, if necessary, disciplinary actions in accordance with class and University policies. This ensures a fair and conducive learning environment that promotes the development of both technical and interpersonal skills crucial for success in the field of engineering.

Academic integrity: The highest academic integrity is expected. Academic violations will however be dealt with according to the UIUC Student Code, Article 1, Part 4. Violations will be reported to the relevant College and, where relevant, to the FAIR system.

Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: https://studentcode.illinois.edu/article1/part4/1-401/. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

- All students are responsible to refrain from infractions of academic integrity, conduct that may lead to suspicion of such infractions, and conduct that aids other in such infractions. "I did not know" is not an excuse.
- The following are academic integrity infractions (http://www.provost.illinois.edu/academicintegrity/students):
    - ✓ Cheating: using or attempting to use unauthorized materials.

- ✓ Plagiarism: representing the words, work, or ideas of another as your own.
- ✓ Fabrication: falsification or invention of information, including citations.
- ✓ Facilitating infractions of academic integrity, helping, or attempting to help another commit infraction.
- ✓ Bribes, favors, and threats: actions intended to affect a grade or evaluation.
- ✓ Academic interference: tampering, altering, or destroying educational material or depriving someone else of access to that material.
- ✓ Note: All infractions are documented in the campus-wide FAIR database.

- If you have difficulty completing your classwork, you should consult the instructor by showing him evidence of your attempts to solve the specific problem/s. However, most lecture time has been set aside exactly for this type of activity; use it to your full advantage.
- Copying (in whole or in part) another student's (or team's) quiz, project work, or exam is not permitted. Copying solutions from web-based answer keys such as Chegg is an honor code violation.
- If you choose to discuss your work with a fellow student, it should be a discussion in which one teaches the other, or where both work to a mutual understanding. The discussion should however relate to general concepts and not address the specifics of the quiz questions.
- It is not acceptable to give a fellow student your completed project work or quiz or other assignment so that they can copy it. In such a case, both you and your fellow student will have committed an academic violation.
- It is also unacceptable to copy work from a student who completed the course previously.
- You should properly cite references and sources in your written reports. Cases of cheating or plagiarism will be handled severely.

  Also, be wary to correctly use quotation marks for sentences or important data that did not originate with you. Further, paraphrasing should be kept to a minimum. When used, the paraphrased section should be specifically identified by citing the original source. It is not sufficient to simply provide a list of references but not indicate where a specific quotation or paraphrase was employed. In addition, all sources should be fully cited. As is done in scientific and engineering literature, you should briefly acknowledge in writing any significant discussions or interactions you had regarding the work you are reporting on.
- Ignorance of academic integrity or uncertainty regarding the instructor's wishes are not justifiable reasons for academic violations. If you are uncertain of the instructor's wishes or intentions, you should consult with him *before* acting.

Sexual Misconduct Reporting Obligation: The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the University's Title IX Office. In turn, an individual with the Title IX Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: wecare.illinois.edu/resources/students/#confidential.

Other information about resources and reporting is available here: wecare.illinois.edu.

Community of Care: As members of the Illinois community, we each have a responsibility to express care and concern for one another. If you come across a classmate whose behavior

concerns you, whether in regards to their well-being or yours, we encourage you to refer this behavior to the Student Assistance Center (217-333-0050 or http://odos.illinois.edu/community-ofcare/referral/). Based on your report, the staff in the Student Assistance Center reaches out to students to make sure they have the support they need to be healthy and safe.

Further, we understand the impact that struggles with mental health can have on your experience at Illinois. Significant stress, strained relationships, anxiety, excessive worry, alcohol/drug problems, a loss of motivation, or problems with eating and/or sleeping can all interfere with optimal academic performance. We encourage all students to reach out to talk with someone, and we want to make sure you are aware that you can access mental health support at the Counseling Center (https://counselingcenter.illinois.edu/) or McKinley Health Center (https://mckinley.illinois.edu/).

Mental Health: Significant stress, mood changes, excessive worry, substance/alcohol misuse or interferences in eating or sleep can have an impact on academic performance, social development, and emotional wellbeing. The University of Illinois Urbana-Champaign offers a variety of confidential services including individual and group counseling, crisis intervention, psychiatric services and specialized screenings which are covered through the Student Health Fee.

If you or someone you know experiences any of the above mental health concerns, it is strongly encouraged to contact or visit any of the University's resources provided below. Getting help is a smart and courageous thing to do for yourself and for those who care about you.

- Counseling Center (217) 333-3704
- McKinley Health Center (217) 333-2700
- National Suicide Prevention Lifeline (800) 273-8255
- Rosecrance Crisis Line (217) 359-4141 (available 24/7, 365 days a year)

Religious Observances*:* The Religious Observance Accommodation Request form is available at http://odos.illinois.edu/community-ofcare/resources/docs/Religious-ObservanceAccommodation-Request-Form.pdf. Submit the form to the instructor and to the Office of the Dean of Students (helpdean@illinois.edu) by the end of the second week of the course; in the case of exams or assignments scheduled after this period, students should submit the form to the instructor and to the Office of the Dean of Students as soon as possible.

Disability-Related Accommodations*:* To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 333-4603, e-mail disability@illinois.edu or go to https://www.disability.illinois.edu. If you are concerned you have a disability-related condition that is impacting your academic progress, there are academic screening appointments available that can help diagnosis a previously undiagnosed disability. You may access these by visiting the DRES website and selecting "Request an Academic Screening" at the bottom of the page.

Family Educational Rights and Privacy Act (FERPA)*:* Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See https://registrar.illinois.edu/academic-records/ferpa/ for more information on FERPA.

Inclusion: The intent is to raise student and instructor awareness of the ongoing threat of bias and racism and of the need to take personal responsibility in creating an inclusive learning environment. The Grainger College of Engineering is committed to the creation of an anti-racist, inclusive community that welcomes diversity along a number of dimensions, including, but not limited to, race, ethnicity and national origins, gender and gender identity, sexuality, disability status, class, age, or religious beliefs.
The College recognizes that we are learning together in the midst of the Black Lives Matter movement, that Black, Hispanic, and Indigenous voices and contributions have largely either been excluded from, or not recognized in, science and engineering, and that both overt racism and micro-aggressions threaten the well-being of our students and our university community.

The effectiveness of this course is dependent upon each of us to create a safe and encouraging learning environment that allows for the open exchange of ideas while also ensuring equitable opportunities and respect for all of us. Everyone is expected to help establish and maintain an environment where students, staff, and faculty can contribute without fear of personal ridicule, or intolerant or offensive language. If you witness or experience racism, discrimination, micro-aggressions, or other offensive behavior, you are encouraged to bring this to the attention of the course director if you feel comfortable.

You can also report these behaviors to the Bias Assessment and Response Team (BART) (https://bart.illinois.edu/). Based on your report, BART members will follow up and reach out to students to make sure they have the support they need to be healthy and safe. If the reported behavior also violates university policy, staff in the Office for Student Conflict Resolution may respond as well and will take appropriate action.

Emergency response recommendations can be found at the following website: http://police.illinois.edu/emergency-preparedness/. You are encouraged to review this website and the campus building floor plans website within the first 10 days of class. http://police.illinois.edu/emergencypreparedness/building-emergency-action-plans/

Final Note to Students

This course values *curiosity, judgment, and engagement* with real-world complexity. You will not be asked to submit constant annotations or busywork. Instead, you will be expected to come prepared, participate thoughtfully, and demonstrate learning through periodic, meaningful assessments that mirror how energy professionals actually work.

Enjoy the course!