PURDUE UNIVERSITY | College of Engineering

TO: The Engineering Faculty

FROM: The Faculty of the School of Engineering Education

RE: New Undergraduate Course – IDE 48000 Engineering Ethics in Interdisciplinary Contexts

The Faculty of the School of Engineering Education has approved the following new undergraduate course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

FROM (IF ALREADY OFFERED WITH TEMPORARY NUMBER):

IDE 49500: Engineering Ethics in Interdisciplinary Context

Semester Offered:	**SPRING SEMESTER**		
Total Number of Credits	**3**	Credits Broken Down by Schedule Type	3 LEC
Prerequisite(s):	NONE		
Previous Offerings with Enrollment:	Spring 2022 (16), Spring 2023 (20)		

TO:

IDE 48000 – Engineering Ethics in Interdisciplinary Contexts

Semester Offered:	**FALL AND SPRING SEMESTER**		
Total Number of Credits	**3**	Credits Broken Down by Schedule Type	3 LEC
Prerequisite(s):	NONE		
Previous Offerings with Enrollment:	NONE: Engineering students' undergraduate education should help prepare them to join the engineering workforce and other professional pathways after graduation. Many engineering courses build students' technical competence. In this course, student will learn the values of the engineering profession and learn to navigate ethical issues that they may encounter as a practicing professional. The purpose of this course is to provide student with tools and strategies to reason through situations with ethical issues that they may encounter as engineering students and in their future careers. To this end, this course seeks to enhance students' awareness of ethical issues in interdisciplinary engineering contexts, ability to reason through ethical challenges in diverse engineering contexts, courage to respond to ethical issues in their future practice, ability to work effectively on teams, and the ability to communicate with others.		

RATIONALE:

This course will be offered in the Multidisciplinary Engineering and Interdisciplinary Engineering Studies (MDE & IDES) programs, and will serve as an important part of the curriculum by providing opportunities for students to develop a deep understanding of ABET criteria #4 (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). As a result of this course, students become more ethically aware of their personal and professional values, as evident through their continuous reflection throughout the course, including but not limited to three self-directed reflections (which students choose) and a capstone project (which is on a pertinent ethical issue related to their discipline or collegiate experiences; as an example, in Spring 2023, a team focused on ChatGPT use in academia). Students also show improved ethical judgement by applying engineering ethics codes and ethical theories to interdisciplinary case studies (ranging from AI ethics to environmental lapses). Throughout the sequence of case studies in the course, students are required to perspective-take: thus, students become more cognizant of stakeholder perspectives and able to reason from stakeholders' perspectives to justify ethical decisions. The course also prompts students to communicate in verbal and written modalities, and students' verbal and written communication skills improve show significant improvements over the semester. This course has been and will remain open to students in other engineering programs. Thus far, students across the COE have participated in the course, including MDE/IDE (n = 18), nuclear engineering (n = 6), mechanical engineering (n = 6), civil engineering (n = 2), agricultural & biological engineering (n = 1), chemical engineering (n= 1), and industrial engineering (n = 1). Note that one masters student in computer graphics also participated in the course in Spring 2023. Course evaluations have consistently shown high teaching evaluations, with an average response to aggregated items at 4.76 and 4.74 in S22 and S23, respectively. Students have also shown learning benefits, including greater clarity of their personal and professional values (as evidenced in their weekly reflections, reflection essays, and presentations), ethical awareness (as evident through self-directed reflections and the capstone project) ethical reasoning skills (as evident through case study reports and the capstone project), teamwork skills (students shift case study 'teams' throughout the course and work as a team on the capstone project), and both verbal and oral communication (students post reflections throughout the course and at the end of the course and give multiple presentations). The course is cross-listed with ME 492 (Technology and Values) as a course option for the Engineering and Public Policy Minor and the Intellectual Property Law for Engineers Minor. The course is also being considered for a new Science, Technology & Society Minor and will be added once it receives a permanent number.

Edward J. Berger
Interim Head, School of Engineering Education
Professor of Engineering Education

Link to Curriculog entry:
[Paste link to Curriculog entry.]

IDE 49500: Engineering Ethics in Interdisciplinary Contexts
Spring 2023

3 credits, ARMS 1028, Tuesdays and Thursdays from 3:00pm – 4:15pm

Professor: Justin Hess jhess@purdue.edu ARMS 1331

Teaching Assistant: Andrew Gray gray197@purdue.edu

Intended for: Multidisciplinary Engineering/ Interdisciplinary Engineering Juniors or Seniors
Other engineering students, with junior standing or higher
Other undergraduates with interest in engineering ethics

Office hours: Zoom and by appointment (email instructor or TA to setup an appointment)

1. Course Description

As engineering students, your education will help prepare you to join the engineering workforce and other professional pathways after graduation. Many of your courses build your technical competence. In this course, you will learn the values of the engineering profession and learn to navigate ethical issues that you may encounter as a practicing professional. The purpose of this course is to provide you with tools and strategies to reason through situations with ethical issues that you may encounter as engineering students and in your future careers.

To this end, this course seeks to enhance students' **awareness** of ethical issues in interdisciplinary engineering contexts, ability to **reason** through ethical challenges in diverse engineering contexts, **courage** to respond to ethical issues in their future practice, ability to work effectively on **teams**, and the ability to **communicate** with others. The course will address this learning objectives by **scaffolding** content to build on students' prior and co-curricular experiences; utilizing stakeholder **perspective-taking** activities to have students envision how engineering decisions affect diverse stakeholders; via direct **engagement** with local community issues in Purdue's community and West Lafayette; purposeful **interactivity** among peers to ensure peers' perspectives are shared in collegial ways and to further promote appreciation of diverse perspectives; **written reports** indicating team's agreement on the most justifiable responses to ethical challenges; and individual **critical reflection** written activities wherein students consider their course learnings and becoming self. Moreover, the course will implement a variety of content in the forms of readings and videos focused on engineering disciplinary organizations' codes of ethics; case studies highlighting the impacts of technology on society; ethical theories, particularly five principles that can guide engineering ethical decision-making.

2. Teaching Philosophy / Course Premises

This course recognizes there can be multiple courses of ethical action and that these different trajectories are fundamentally informed by different values and principles. Thus, we seek to provide students with opportunities to meaningfully engage with different ways of responding to ethical encounters. To this end, students will generate and consider responses (plural) to ethical issues while simultaneously developing some contextual awareness, while continuously reflecting on how one's choices and agency may be inhibited or bolstered by systemic and social influences. Moreover, students will collaborate in teams to generate responses to multiple and diverse ethical issues and they will reflect to identify possible systemic constraints and individual values that informed their decisions.

This class will be largely discussion-based. To prepare for class each week, you will complete assigned readings and other multimedia materials. Class time will be spent on discussions and learning from your peers. The content from the readings will help you develop your ideas, but ultimately you and your classmates will socially construct knowledge together. The goal of the discussion is not to have the class converge to a "right" answer, but rather to allow each of you the freedom to explore your own thinking in a safe environment.

Morality and ethics can sometimes lead to difficult conversations and even conflict. As such, we will strive to create a safe minded classroom environment where we hope you will feel comfortable contributing your valuable insights. Maintaining a respectful and open-minded classroom culture is of the utmost importance for engaging in sometimes challenging or counter-normative ethical discussions.

3. Course Learning Outcomes and Learning Objectives

At the end of this course, learners will be able to:

Learning Outcomes	Learning Objectives
1. Ethical Value Awareness Students will be able to identify ethical issues affecting ethical engineering practice in interdisciplinary engineering contexts.	1.1. Identify one's personal values and consider how they align with other value types, such as professional and organizational.
	1.2. Use perspective-taking techniques to recognize others' values, especially when they differ from one's own values.
2. Ethical Reasoning Students will be able to apply a consistent reasoning process towards ethical issues in an engineering context and formulate appropriate courses of action to respond to the issue.	2.1. Analyze a situated example of engineering practice by identifying underlying values and applying ethical principles (justice, beneficence, non-maleficence, respect for autonomy, care).
	2.2. Empathize with diverse stakeholders and integrate their perspectives into one's ethical reasoning process.
3. Confidence in Facing Ethical Situations Students will feel prepared to respond to ethical issues they may encounter in their future work.	3.1. Generate, implement, test, and iterate on possible courses of action to respond to an ethical situation.
	3.2. Recognize how systemic factors (social, cultural, organizational) may influence one's response to an ethical situation.
4. Teamwork Skills Students will be able to effectively collaborate on interdisciplinary teams while considering and responding to challenging ethical scenarios.	4.1. Engage in critical and challenging conversations with peers about ethical issues with respect and empathy.
	4.2. Integrate diverse perspectives into one's thinking or reasoning about an ethical situation.
5. Communication Skills Students will be able to communicate ethical considerations to their peers and other key stakeholders.	5.1 Explain and justify one's position on an ethical situation.
	5.2. Articulate how one's personal and professional values can be used as a heuristic to act ethically.

4. Alignment Between Learning Objectives and MDE Program Outcomes

Alignment with MDE Program Outcomes: This course recognizes the significant overlap between engineering ethics and one's development of professional skills. Thus, the course helps students attain multiple ABET and MDE Program Outcomes. Applicable outcomes are bolded below and mapped to respective learning objectives above.

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics **(LO2)**
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors **(LO1, LO2)**
3. An ability to communicate effectively with a range of audiences **(LO1, LO4, LO5)**
4. 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. **(LO1, LO2)**
5. 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 objective **(LO4, LO5)**
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions **(LO1, LO2)**
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies **(LO1, LO2, LO3, LO4, LO5)**

5. Learning Resources, Technology, & Texts

Brightspace is the course learning management system where you will access our course and all course content. There is **NO Required textbook**. Readings will be provided in Brightspace.

6. Grading Scale

The scale for course grades will be A+ (97-100); A (93-96.9); A- (90-92.9) B+ (87-89.9); B (83-86.9); B- (80-82.9); C+ (77-79.9); etc. The final scores may be adjusted (in a positive direction) at the discretion of the instructor based on overall class performance. I expect that all assignments will be turned in on the due date unless you have a valid (documented) excuse. Requests for re-grading of any assignment must be made within one week of the date when the item was available for return. Requests for re-grading must include a written statement detailing the reason why you believe that your grade should be adjusted.

The final date to withdraw from a course with a W or WF for Spring 2023 is Friday, March 10.

7. Incomplete Grades

A grade of incomplete (I) will be given only in unusual circumstances. To receive an "I" grade, a written request must be submitted approved by the instructor as early as possible and no later than the 13th week of the course. The request must describe the circumstances, along with a proposed timeline for completing the course work. Submitting a request does not ensure that an incomplete grade will be granted. If granted, you will be required to fill out and sign an "Incomplete Contract" form that will be turned in with the course grades. Any requests made after the course is completed will not be considered for an incomplete grade.

8. Assignments and Points

The course employs authentic assessment strategies and chooses assessment techniques which correspond with the different learning objectives and the given assignments. Additionally, the instructor takes individual differences in the context of assessment into consideration. In this course, there will seldom be "right" and "wrong" answers. As such, we are more interested in the development of your ideas and how clearly you can communicate them. Students will receive credit for completing the class-time activities and participating in class discussions. Rubrics for all activities are available in Brightspace. There will be no final exam; however, the final project paper will be due the week before finals' week. Please remember the Purdue Honors Pledge: *As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue.*

The final grade will be based on the following:

Assignment	Individual/Group	Points
1. Participation (class-time activities, discussion, evaluations)	Individual	**10**
2. Individual Written Reflections (We will have three types of written reflections – Theoretical Reflections, Case Study Reflections, and Self-Directed Reflections)	Individual	**12**
3. Presentation on Self-Directed Reflection	Individual	**3**
4. Survey Reflection Activities	Individual	**5**
5. Self-Reflection Ethics Paper	Individual	**15**
6. Case Study Group Reports (5 throughout semester, 5 pts each)	Group	**25**
7a. Capstone Ethics Project: Milestone 1 – Case Creation	Group	**5**
7b. Capstone Ethics Project: Milestone 2 – Case Analysis	Individual	**8**
7a. Capstone Ethics Project: Milestone 3 – Presentation	Group	**15**
7d. Capstone Ethics Project: Milestone 4 – Individual Reflection	Individual	**2**
	Total	**100**

8.1. Participation

Your participation in this course is important for your learning as well as the learning of your fellow students. Your classmates' experiences will be enriched as you actively share your thoughts and ideas during the class-time discussion. Additionally, during some class sessions, you will have time to work on your group design project. You will **need** to be in class to contribute to this group work - this is ***not*** an online course. Because your active participation is important for your learning and your classmates' learning, 10% of your semester grade is allocated to class participation. To earn the full 10%, plan to attend class regularly, contribute to small-group and whole-group conversations, and complete in the class-time activities. We will assign a participation score for the first-half of the semester (5%) and a separate participation score for the second-half of the semester (worth 5%).

If you ever need to miss class due to concerns associated with illness, grief, or for any other reason, I ask that you inform me as soon as possible.

8.2. Written Reflections

Throughout the course, there will be three distinct types of reflections which align with distinct course learning objectives and assignments:

(1) **theoretical reflections** wherein you will reflect on readings pertaining to values, reasoning, or navigating cultural systems.
(2) **case study reflections** wherein you will reflect on case study content, including taking stakeholder perspectives, applying ethical frameworks to a case study, or reflecting on the entire case.
(3) **self-directed reflections** wherein you will reflect on relevant ethical issues from the news or other online sources.

While the exact prompts vary from week to week, in general, reflection posts should contain:

(1) A summary of the content of the day or week which highlights and emphasize key elements and important concepts.
(2) At least two discussion-starters that come from the reading which could be a clarifying question, a challenge to the reading, a comparison to other readings, or a difficulty you expect in implementing or realizing an idea or ideal in practice.

You should write the one-page reflection as a narrative *or* with bullet-points. Please include the title of the content (e.g., video, article/reading) and page numbers when you make specific references.

Please post your Reflections to Brightspace **by the start of class (2:59PM EST)** on the specified due date in the "Discussions" section of Brightspace. You may upload a document or copy your text/ type directly in the discussion space.

There are 12 total discussion posts. I expect you to participate in every discussion post.

The following table provides a general overview of what I hope to see in posts (if you do not submit a post or have less than the expectations of "moderately acceptable," your post may receive a 0 for that week). While we will accept "late" submissions, the submission window will close one week following each reflection post *and* we will take points off. We will subtract 25% from the final grade for reflections submitted 24 hours late and 50% from the final grade for reflections submitted one week late.

The following rubric offers a standard rubric for reflection posts. However, be sure to review the rubric materials for each post in Brightspace, as the specific rubric will vary based on type of discussion post.

Rubric Criteria	**Excellent** ***(.2 points each; 1 point total)***	**Moderately Acceptable** ***(0.1 points each; 0.5 points total)***
Submission	Response provided by due date.	Response provided, but not by due date.
Length	Response is approximately one page.	Response is about half page or less.
Originality	Response is in students' own language (passages from text may still be cited).	Response primarily restates what was in the text without any original language.
Learning or Meaning	Response explicitly indicates how the reading informed their ethical awareness, ethical reasoning, or ethical motivations.	Response implicitly indicates how the reading informed their ethical awareness, reasoning, or motivation.

Questions	Response includes two or more questions that you find challenging and want to discuss.	Response implies some questions that you still have.

8.3. Presentation on Self-Directed Reflection (Student Chosen Case Study)

While we will have **three** self-directed reflections this semester (see schedule), you will give a 10-minute presentation (including Q&A) on **one** self-directed reflection, and this presentation will be worth 3 points. We will have a third of the class present on these self-directed reflections at each stage. Please see Brightspace for more details and the rubric.

8.4. Survey Reflection and Self/Team Evaluation Activities

As part of the course, we will ask you to reflect on specific aspects associated with ethics and your teamwork experiences. We will conduct these surveys at multiple time points over the semester. Two of the surveys will inquire into your ethical values, reasoning, and commitment. In addition, near the end of the course, we will solicit feedback on your perceptions of how you are performing in your team on the group capstone project. The purpose of this activity is to provide an opportunity for you to reflect on your team's overall performance, your self-performance, and your peer's performance. This is intended to facilitate improved teaming throughout the rest of the semester. This also provides an opportunity for us to learn from all of you about how your team is functioning and where support may be needed. In addition, the grade that individual team members receive on the final project may be adjusted based on the collective feedback from the team.

8.5. Self-Reflection Ethics Paper

The self-reflection paper should address two primary questions:
(1) what did you learn about ethics during this semester?
(2) how will you make ethical decisions in your future academic and professional career?

More details about this assignment, including the grading rubric, will be posted to Brightspace.

8.6. Case Study Group Reports

As part of each case study, you will work with a team of 4 to 5 students to make an ethical decision to a specific prompt. The prompts will vary and will be specific to the case and certain ethical reasoning frameworks. More details about this case reports will be provided in Brightspace.

8.7. Ethics Capstone Project

In teams, students will be asked to find a current event related to ethics involving engineers. This project will consist of 4 milestones:

	Milestone	Assignment Type	Deliverable	Points	Due Date
1.	**Case Creation**	Team	Written case summary with references	5	April 8 by 11:59pm
2.	**Case Analysis**	Individual	Written case report	8	April 21 by 3pm

3.	**Case Presentation**	Team	20-minute team presentation	15	April 28 by 3pm
4.	**Case Reflection**	Individual	Written reflection	2	April 29 by 11:59pm

Each team will analyze the situation by identifying values and relevant theoretical approaches. Individually, students will formulate possible courses of action. Given what they know about the situation, each student will pick one option to recommend to an engineer in that situation, noting the values that the option prioritizes and any relevant connections to moral theories. In teams, students will then discuss their list of options, their recommendation, and why they felt that option was the best. The goal of the discussion is not to achieve consensus, but rather to give students the opportunity to defend their position or modify it based on feedback from their peers.

More details about this assignment, including the grading rubric, will be posted to Brightspace.

9. Participation Expectations

This course provides many opportunities to learn. While much effort has gone into the design of this course, ultimately it is your responsibility to *learn*. I expect you to: (1) think critically about course content, (2) engage in class discussions, wherein you will explain your insights and ask others to explain theirs, and work towards making persuasive and grounded arguments, (3) contribute to your team's project, (4) participate wholly by completing assignments on time and coming prepared for class to discuss weekly readings, (5) inform me of any special learning needs (see http://www.purdue.edu/odos/adpro/), and (6) abide by Purdue's policy on scholastic conduct (http://www.purdue.edu/univregs/pages/stu_conduct/stu_regulations.html).
If you need accommodations to succeed in this class (e.g., visual, hearing or learning disabilities or language differences) please let me know so I can make appropriate accommodations. The Adaptive Services website is located at: http://www.purdue.edu/odos/adpro/.

10. Late Work Policy

Deadlines are an unavoidable part of being a professional and this course is no exception. Course requirements must be completed and posted or submitted on or before the specified due date and delivery time deadline. To encourage you to stay on schedule, due dates have been established for each assignment; 20% of the total points will be deducted for assignments received 1 day late and 50% of the total points will be deducted for assignments received one week late. Assignments received more than 1 week late will receive 0 points.

While the above policy will hold for regular circumstances, if you become sick, need to quarantine, or have other unforeseen circumstances, please let us know as soon as possible. As needed, we will postpone due dates for individual assignments. For group assignments, we will collectively develop a plan for the assignment, either delaying the team assignment a few days if adequate, providing an individual option, or agreeing on an equal but alternative assignment.

11. Attendance Policy

This course follows the Academic Regulations: Attendance and Office of the Dean of Students: Class Absences posted in Brightspace under "University Policies and Statements." The policies state that students are expected to be present for every meeting of the classes in which they are enrolled.

Attendance will be taken at the beginning of each class and lateness will be noted. When conflicts or absences can be anticipated, such as for many University-sponsored activities and religious observations, you should inform me of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification to is not possible, contact me as soon as possible by email or phone. For cases that fall under excused absence regulations, you or the your representative should contact or go to the Office of the Dean of Students (ODOS) website to complete appropriate forms for instructor notification. Under academic regulations, excused absences may be granted by ODOS for cases of grief/bereavement, military service, jury duty, parenting leave, or emergent medical care. In cases related to COVID-19, please follow the Protect Purdue Updates for the Spring 2023 Semester.

12. Grief Policy

The time of loss is very difficult. The Office of the Dean of Students (ODOS) is here to support you however we can. Students are eligible for a specific number of excused absences determined by the relationship of the individual lost; additional days may be granted to account for travel considerations. A student should complete the following form to request that a notice of leave be sent to instructors: **https://cm.maxient.com/reportingform.php?PurdueUniv&layout_id=18**. A Student Support Specialist from **The Office of the Dean of Students** will be in contact with the student via their Purdue email by the end of the next business day. Please note, the grief absence verification process will not be complete until communication has occurred with a Student Support Specialist. You can learn more about the Grief Absence Policy for Students (GAPS) at **Student Regulations website**.

13. Diversity & Inclusion & Equity

In our discussions, structured and unstructured, we will explore a variety of challenging issues, which can help us enhance our understanding of different experiences and perspectives. This can be challenging, but in overcoming these challenges we find the greatest rewards. While we will design guidelines as a group, everyone should remember the following points:

- We are all in the process of learning about others and their experiences. Please speak with me, anonymously if needed, if something has made you uncomfortable.
- Intention and impact are not always aligned, and we should respect the impact something may have on someone even if it was not the speaker's intention.
- We all come to the class with a variety of experiences and a range of expertise, we should respect these in others while critically examining them in ourselves."

This course, as with every course offered at Purdue, plays a part in creating and sustaining a welcoming campus where all students can excel. There are many initiatives in ___ department and supported by the university focused on this goal, and this course is designed to take advantage of those resources. Learning experiences and assignments address diversity and inclusion, not because they are "topics," but because they are necessary to prepare students to be successful in a diverse, global environment.

We strive for equity, providing equal access and opportunity, and working to maximize student potential. This requires both instructor and students to identify and remove barriers that may prevent someone from full access or full participation. You can help by:

- Contacting me, anonymously if needed, if you see a potential barrier for someone or yourself in participating fully in the class. This might be a physical barrier such as access to technology or a personal situation.

- Suggesting ways in which members of our class can support each other. Virtual study groups and discussion boards are examples, but I encourage you to be creative in your ideas.
- Getting to know each other as contributing members of our learning community. Everyone has something to contribute, and while I designed the course to take advantage of the wealth of knowledge, expertise, and experience we bring together, I cannot do it well without your participation. There are many opportunities built into this course for this type of work. It is important we do it together.

14. Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information is submitted the greater the opportunity for the university to investigate the concern. More details are available on our course Brightspace table of contents, under University Policies.

Incidents of academic misconduct in this course will be addressed by the course instructor and referred to the Office of Student Rights and Responsibilities (OSRR) for review at the university level. Any violation of course policies as it relates to academic integrity will result minimally in a failing or zero grade for that particular assignment, and at the instructor's discretion may result in a failing grade for the course. In addition, all incidents of academic misconduct will be forwarded to OSRR, where university penalties, including removal from the university, may be considered.

15. Basic Needs

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. There is no appointment needed and Student Support Services is available to serve students 8 a.m.-5 p.m. Monday through Friday. Considering the significant disruptions caused by the current global crisis as it relates to COVID-19, students may submit requests for emergency assistance from the Critical Need Fund

16. Mental Health Statement

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try WellTrack**.** Sign in and find information and tools at your fingertips, available to you at any time.

If you need support and information about options and resources, please contact or see the Office of the Dean of Students. Call 765-494-1747. Hours of operation are M-F, 8 am- 5 pm.

If you find yourself struggling to find a healthy balance between academics, social life, stress, etc., sign up for free one-on-one virtual or in-person sessions with a Purdue Wellness Coach at RecWell. Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on BoilerConnect. If you have any questions, please contact Purdue Wellness at evans240@purdue.edu.

If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at 765-494-6995 during and after hours, on

weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.

17. Accessibility

Purdue University is committed to making learning experiences accessible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

18. Nondiscrimination Statement

Purdue University is committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. A hyperlink to Purdue's full Nondiscrimination Policy Statement is included in our course Brightspace under University Policies. *Link to Purdue's nondiscrimination policy statement*.

19. Emergency Preparation

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

EMERGENCY NOTIFICATION PROCEDURES are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

- **Indoor Fire Alarms** mean to stop class or research and immediately **evacuate** the building.
  - Proceed to your Emergency Assembly Area away from building doors. **Remain outside** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.
- **All Hazards Outdoor Emergency Warning Sirens** mean to immediately seek shelter (**Shelter in Place**) in a safe location within the closest building.
  - "Shelter in place" means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, a civil disturbance including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency*. **Remain in place** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

*In both cases, you should seek additional clarifying information by all means possible…Purdue Emergency Status page, text message, email alert, TV, radio, etc…review the Purdue Emergency

Warning Notification System multi-communication layers at
http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html

In the event of a major campus emergency (e.g., the A H1N1 virus), course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted on Brightspace, and when appropriate as an e-mail. *You are expected to read your @purdue.edu email on a frequent basis.*

20. Use of Copyrighted Materials

Among the materials that may be protected by copyright law are the lectures, notes, and other material presented in class or as part of the course. Always assume the materials presented by an instructor are protected by copyright unless the instructor has stated otherwise. Students enrolled in, and authorized visitors to, Purdue University courses are permitted to take notes, which they may use for individual/group study or for other non-commercial purposes reasonably arising from enrollment in the course or the University generally.

Notes taken in class are, however, generally considered to be "derivative works" of the instructor's presentations and materials, and they are thus subject to the instructor's copyright in such presentations and materials. No individual is permitted to sell or otherwise barter notes, either to other students or to any commercial concern, for a course without the express written permission of the course instructor. To obtain permission to sell or barter notes, the individual wishing to sell or barter the notes must be registered in the course or must be an approved visitor to the class. Course instructors may choose to grant or not grant such permission at their own discretion, and may require a review of the notes prior to their being sold or bartered. If they do grant such permission, they may revoke it at any time, if they so choose.

21. Academic Guidance in the Event a Student is Quarantined/Isolated

If you must miss class at any point in time during the semester, please reach out to me via Purdue email so that we can communicate about how you can maintain your academic progress. If you find yourself too sick to progress in the course, notify your adviser and notify me via email or Brightspace. We will make arrangements based on your particular situation. Please note that, according to Details for Students on Normal Operations for Fall 2021 announced on the Protect Purdue website, "individuals who test positive for COVID-19 are not guaranteed remote access to all course activities, materials, and assignments."

CAPS also offers resources specific to COVID-19 on its website. Topics range from "Adjusting to the New Normal" to "How to Talk with Professors about Personal Matters."

22. Classroom Guidance Regarding Protect Purdue

Any student who has substantial reason to believe that another person is threatening the safety of others by not complying with Protect Purdue protocols is encouraged to report the behavior to and discuss the next steps with their instructor. Students also have the option of reporting the behavior to the Office of the Student Rights and Responsibilities. See also Purdue University Bill of Student Rights and the Violent Behavior Policy under University Resources in Brightspace.

Schedule (Please note that this is subject to change – see Brightspace for latest version)

Our schedule is structured loosely around five themes:

1. **Overview & Responsibility**: What is ethics? Why does it matter in engineering? (Weeks 1-2)
2. **Values & Virtue**: What role do values and virtues play in engineering ethics? What are my values? How can I practice my values as a person and as a professional? (Weeks 3-6)
3. **Ethical Reasoning**: How do engineers make ethical decisions? How can I reason ethically? (Weeks 7-9)
4. **Navigating Systems**: What systemic factors influence ethical practice? How can I effectively navigate these systems to practice ethical engineering? (Weeks 10-12)
5. **Synthesis/Analysis**: What is one ethical issue that is salient to my future practice? How can I effectively analyze this case in a team setting? How can I effectively share this analysis with others? (Weeks 13-16)

Theme	**Week**	**Class # Date**	**Topics** *Types of questions we will grapple with*	**Reflections** (*Due before class*)	**Individual (I) or Group (G) Assignment** (*Due at time indicated*)
Overview & Responsibility	1	#1 Jan 10	**Course introduction** *What is ethics? Why does it matter?*		
	1	#2 Jan 12	**Engineering Ethics** *Why do ethics matter in engineering? How is ethics important to you, personally?*		Survey Reflection 1 (I) (*due by Jan 14 by end of day*)
	2	#3 Jan 17	**Case Study I: Self-Driving Vehicles (with Dr. Ali Kerr)** *Trolley car example*	Theoretical Reflection #1	
	2	#4 Jan 19	**Case Study I: Self-Driving Vehicles (Continued)**		Group Case Report #1 (G) (*due by end of day on Friday*)
Values & Virtue	3	#5 Jan 24	**Virtue Ethics (with Dr. Jonathan Beever)** *What does it mean to be a virtuous person? What does it mean to be a virtuous engineer?*	Case Study Reflection #1	
	3	#6 Jan 26	**Virtue and Values Presentation #1**		
	4	#7 Jan 31	**Case Study II: Theranos (with Dr. Andrew Brightman)**	Theoretical Reflection #2	
	4	#8 Feb 2	**Case Study II: Theranos (continued)**		Group Case Report #2 (G) (*due by end of day on Friday*)
	5	#9	**Professional Ethics in Engineering**	Case Study Reflection #2	

Theme	**Week**	**Class # Date**	**Topics** *Types of questions we will grapple with*	**Reflections** (*Due before class*)	**Individual (I) or Group (G) Assignment** (*Due at time indicated*)
		Feb 7			
	5	#10 Feb 9	**Literature Review & Preparing for Self-Directed Case Studies**		
	6	#11 Feb 14	**Case Study III: Marble Hill Nuclear Plant (with IDE495 alum Elizabeth Bramer)**		
	6	#12 Feb 16	**Case Study III: Marble Hill Nuclear Engineering**		Group Case Report #3 (G) (*due by end of day on Friday*)
Ethical Reasoning	7	#13 Feb 21	**Reflexive Principlism**	Case Study Reflection #3	
	7	#14 Feb 23	**Student Selected Case Study #1**	Self-Directed Reflection #1	
	8	#15 Feb 28	**Case Study IV: Heart valves**	Theoretical Reflection #3	
	8	#16 Mar 2	**Case Study IV: Heart valves** *Dr. Riley on Social Justice*		Group Case Report #4 (G) (*due by end of day on Friday*)
	9	#17 Mar 7	**Macro and Micro Ethics**	Case Study Reflection #4	
	9	#18 Mar 9	**Student Selected Case Study #2**	Self-Directed Reflection #2	
	10	#19 Mar 14	**SPRING BREAK**		
	10	#20 Mar 16	**SPRING BREAK**		
Navigating Systems	11	#21 Mar 21	**Case Study V: Deepwater Horizon Oil Spill**	Theoretical Reflection #4	
	11	#22 Mar 23	**Case Study V: Deepwater Horizon Oil Spill**		Group Case Report #5 (G) (*due by end of day on Friday*)
	12	#23 Mar 28	**Reflecting on the Semester (Ethical Frameworks, Cases, & Values)**	Case Study Reflection #5	
	12	#24 Mar 30	**Student Selected Case Study # 3**	Self-Directed Reflection #3	
Case Synthesis	13	#25	**Capstone I - Sharing Topics & "Speed Dating"**		

Theme	**Week**	**Class #** **Date**	**Topics** *Types of questions we will grapple with*	**Reflections** (*Due before class*)	**Individual (I) or Group (G) Assignment** (*Due at time indicated*)
		Apr 4			
	13	#26 Apr 6	**Capstone II – Finalizing Topics & Literature Review (with work time)**		Milestone 1 (I) (*due by end of day Saturday*)
	14	#27 Apr 11	**Capstone III – Interviewing & Work Time**		
	14	#28 Apr 13	**Capstone IV – Work Time**		Milestone 2 (G) (*due by end of day on Saturday*)
	15	#29 Apr 18	**Capstone V - Self-Team Review; Peer Feedback**		-Survey reflection 2 - Self/Team Review
	15	#30 Apr 20	**Capstone VI - Work Time +** **End-of-course survey** **(Andrew is gone)**		-Survey Reflection 3 – Post-course survey -Self-Reflection Paper or Interview
	16	#31 Apr 25	**Final Presentations I**		Milestone 3 (G) - *due by end of day* Final Presentations
	16	#32 Apr 27	**Final Presentations II**		Final Presentations
	Finals	**May 1-7**	**No Final Exam**		Milestone 4 (I) – *due April 29 by the end of day*