

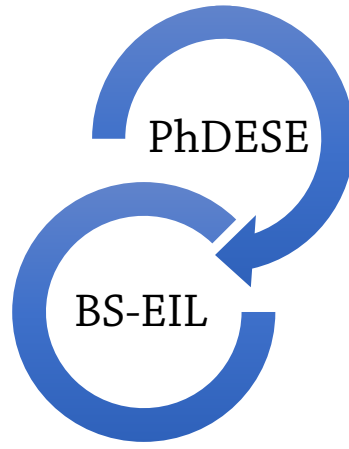
ESE 6320 CRN 25265 * EL 4334 CRN 29441

Spring 2022

ESE: Environmental Science & Engineering Practice, STEM Ethics & Professionalism

EL: Engineering Ethics and Professional Practice

Working Syllabus/Subject to Change: Version 20220120A



Welcome to our course! Glad we have the opportunity to participate together in this adventure. Let's commend you on enrolling for this course. It will change your thinking.

In engineering and science, we tend to focus on our technical research; yet engineering and science education research can be equally rewarding and have as much or more impact on our fields. A well-rounded professional engineer and scientist will provide service as both a researcher, and educator; and these fields of endeavor come together in engineering and science education practices, including research – we might call it STEAM Education or STEAM-E research, since it involves *sciences, technology, engineering, arts and mathematics educational practices*.

Learning and doing research is essentially a pathway to building new knowledge that helps others. We will explore the basics of learning ethics through experiential methods while paying particular attention to innovation, environmental science and engineering education, and leadership practices – and research. This course will help us advance the thinking and processing of our professional behaviors and practices.

We will be exploring the basics of ethics-in-practice paying particular attention to environmental science and engineering education and leadership applications. This course will assist in building a stronger more inclusive professional engineering and science self. It is appropriate currently, as we commence the spring semester to reflect on the words of MLK:

" The function of education is to teach one to think intensively and to think critically. Intelligence plus character - that is the goal of true education."

Those words can help guide us to sustain our thinking, our enterprise, and our hopes for bettering the lives of our loved ones, our friends, our colleagues, and our world.

Course Description: This course is designed to engage senior undergraduate and graduate students in ethical practices, based upon principles, theory and professionalism in science and engineering careers. The process of engaging in case studies is utilized to enable students to explore the relationship between ethics and the practice of scientific and engineering research. This proceeds within a problem-solving and practice-basis leaning on precedence, founded upon a background of the application of classical moral theory and decision making to engineering and scientific issues, as encountered in academic and professional careers of our time.

Our society places a great deal of responsibility on professionalism and requires that engineers and scientists practice according to codes of ethics. Students will study real-world case studies that help them to become informed of issues, roles, and responsibilities of engineering and science professionals in the community, government, corporations, and industry.

Course Credit: 3 SCH

Contact Hours: +1/- 3 Hyflex Hours

Prerequisites: ESE doctoral standing and advisor or instructor approval, and / or undergraduate BS-EIL UPD advisor approval

Cross/Co-listed: ESE 6320 & EL 4334

Co-requisites: N/A

Instructors: Peter Golding, Luis Perez, Diane E Golding and Annalisa Perez

Textbook(s) & Required Materials: Please note you do not need to purchase any texts. As and when needed, we will share and load content pertinent to our studies.

- Speight, James G. and Foote, Russell, Ethics in Science and Engineering, Scrivener Publishing LLC, April 2011.
- Stephens-Davidowitz, Seth. Everybody Lies: New Data, and What the Internet Can Tell Us About Who We Really Are, Dey St., William Morrow (2017).
- Mark Manson, The Subtle Art of Not Giving a F*ck: A Counterintuitive Approach to Living a Good Life, Harper One (2016).
- Resources from the Murgough Center for Engineering Professionalism: Gilbane Gold © 1989, Incident at Morales ©2003 (produced with major support from the National Science Foundation), and Henry's Daughters © 2010. Starrett, S., Laray, A.L., and Bertha, C. (2017). Engineering Ethics: Real World Case Studies.

Learning Methods, Competencies and Course Learning Outcomes:

ESE Doctoral and BS-EIL students will learn:

1. An understanding of their duties and responsibilities as professionals through gaining knowledge of the philosophies of ethics, professional practice, and world culture.

2. Basic knowledge of the codes of ethics in science and engineering and society.
3. Improved awareness of potential ethical issues within science and engineering contexts
4. Team skills through working in teams on assignments and in-class assignments
5. The value of leadership principles in professionally managing 1. through 4.
6. Know some of the classic cases as well as contemporary issues in ethics; including conflicts of interest, whistleblowing
7. An understanding of how societal morals varies with culture and how this influences ethical thought and action
8. Improved communications skills regarding ethical and professional issues in STEM.

Contribution to Doctoral and Undergraduate professional learning components:

Scientific and Engineering professional practice, STEM leadership and management, professional communication, project management.

Relationship to Program Outcomes:

- An ability to recognize ethical and professional responsibilities in science and engineering research, professionalism, and practice situations; to make informed judgments, which must consider the impact of technological solutions in global, economic, environmental, sustainability, and societal contexts.
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

Grading Scheme: A: 90-100 B: 80-90 C: 70-80 D: 60-70 F: <60

Categories for Credit Assignment:

Progress Presentations & Participation: **20%**

Homework: **20%**

Major Individual and Team Projects: **40%**

Mid-Term & Final Examination “Sharings”: **20%**

In addition to all work assignments, Doctoral students will be required to play a lead role in the major project this semester. The graduate student role includes assessment and evaluation of the major projects, including design, process and structure of team endeavors. This will proceed via collaboration, engagement, and coordination with the course instructional team.

Sample Topics 2022 Spring include:

Professional practice of science and engineering, Professional societies, Science and engineering disciplines and ethics, Case studies in STEM ethics, STEM and society, ESE and BS-EIL studies and professional practice.

Course Organization: The course content is divided into units or experiences, and the course content will be covered in 14 weeks. There will be weekly discussions, individual and group activities, a final project, project presentation, and presentation feedback. We will have fun and learn in so doing!

Detailed information about each activity will be provided within each unit at the beginning of each week. New units will be available to students on Saturdays and will remain open until Sunday night of the following week. Assignments are typically due Sundays at the end of the day [11:59 PM] unless otherwise noted.

Class Time and Contact: Class time and/or contact hours weekly: Contact time for the Hyflex course is typically two but on occasion may be up to three hours. Contact time will be largely met by hyflex (F2F + online synchronous learning option where possible (faculty and invited readings, reviews, videos, moderated discussion forums, journals, blogs and quizzes). Online asynchronous activity (may include live class meetings, live office hours, or guided student discussion) with the course taught based on the hyflex and flipped classroom design and a workshop mode. This design is based on research that clearly demonstrates that learning is enhanced when working actively as opposed to listening passively (as in a lecture). In order to make as much time as possible for active work in an asynchronous class, you are expected to prepare for class by doing all the reading, watching all the videos, and completing all required tasks (if any) before you attend class.

Course Participation and Attendance: Students enrolled in this course are required to read all current assignments and complete all other exercises and projects required for each lesson each class where the lesson is discussed. Since we are working asynchronously, your out-of-class assignments will be a substantive part of your work. The out-of-class workload for this course is approximately 6 hours and 30 minutes per week. Out-of-class assignments include: Readings (approximately 3 hours weekly), recorded lectures, videos, and quizzes (approximately 1 hour weekly), and written assignments (approximately 2.5 hours weekly).

Teaching Team: Peter Golding pgolding@utep.edu, Luis Perez lgperez@utep.edu, Anakaren

Jimenez Enciso akjimenez@miners.utep.edu , Diane E Golding degolding@utep.edu , Annalisa Perez perez@utep.edu and Carla Ann Navar cjnavar2@miners.utep.edu Together we will support this course design, structure, implementation and process. Please engage with us – we are here to assist and support you.

Online Discourses – also called Course Discussions: We will get to know one another initially and then proceed to online course discussions, to provide a rich course experience for students. Online course discussions will be based on assigned material, such as readings and videos. Because some issues may be contentious, it is essential we respect each other's perspectives, so that everyone feels comfortable to share points of view; otherwise we limit our learning. However, as engaged students we must be prepared to substantiate our assertions, which can include appropriate referencing. The course discussions will take place to give students practice in discussing and working with colleagues in addressing real-world engineering design and systems issues. Also, it is common knowledge that students learn better and more when they discuss and apply information, especially with others. Refer to the course schedule for the topics that will be addressed.

Course discussions, journaling (and blogs?) will be incorporated into the final grade, calculated by averaging all of the course discussions. The maximum number of points that a student can earn per discussion is 30 points if quality expectations are met. At a minimum, each student must post their answer and at least three replies per discussion. Students can respond to questions raised by either the instructors or classmates. Students can also raise their questions to both the instructor and the rest of the class.

Critical Thinking and Asking Questions:

Quality expectations will be met if a student demonstrates at minimum one of the following:

- Learned from a reading, video or other content format provided
- Made a connection between a content/reading and current or future practice
- Substantiated his/her assertion
- Asked a critical question, or
- Provided a different perspective.

If a student participates but does not meet quality expectations, the student will earn no more than minimum credit per discussion. Whether or not a student meets quality expectations will be determined by the instructors' professional judgment. If a student does not participate, the student will not earn any points for the particular discussion.

As a beginning, discussions, journals and blogs will open on Saturdays, when the readings become available, and the first post is due by Wednesday and replies are due by the next Saturday, with the unit postings closing finally on Sunday close-of-day. The instructor will assess each posting as he/she reviews them for up three postings. Students are not limited to three postings, and the instructor will make every effort to review and respond to most postings.

Additional Requirements for Online Discussions:

1. Take time to think, reflect, and critically analyze questions and postings.
2. Simply agreeing or disagreeing with classmates using one sentence responses will NOT count as participation. Whether you agree or disagree, you must elaborate as to HOW and WHY you agree or disagree.
3. Be sure to proofread your writing before posting, reading the statement aloud to yourself before posting helps.
4. Be precise, concise, and clear on your postings.
5. Assertions must include at minimum a supportive argument and/or reference.
6. Limit your postings to a brief paragraph which is approximately five sentences or 10 lines of text or what usually fits in a screen.
7. Avoid asking “yes or no” discussion questions. Instead, ask questions of degree, questions of how, or why.
8. If you are addressing a question or response to a specific student or the instructor be sure to indicate so. Likewise, if you are directing your question or response to the instructor AND the whole class, indicate that, too.
9. Avoid use of jargon, acronyms, colloquialisms, hyperbole, insults, and personal attacks in your questions and responses. It is expected that there will be disagreement; however one does not need to be disagreeable. Participation must be centered on the readings and other course material.

Note on Assignments:

Assignments may be individual or group activities. Specifics on each assignment will be provided in each unit as needed. Make sure to write documents utilizing APA style and give credit to sources utilized.

Quizzes:

At the end of each course segment, there may on occasion be a Quiz. Quizzes are multiple choice. Questions are randomized.

End of Course Case Study / Project:

Students will be required to complete a final project, which will begin early in the semester with the weekly assignments. The End-of-Course Project should highlight your newly found experiences and outlooks about the topic in an APA-Style report. As the pieces of the project come together, the final deliverables include an APA-style plan and a multimedia presentation. More information will be provided as needed.

Final Presentation and Feedback: Each student or team will take their project and convert it into an online multimedia presentation. The presentation must address the appropriate student audience. Students are encouraged to use various media to share their ideas. These include, but are not limited to PowerPoint/Prezi Presentations, videos, and downloadable brochures. The presentation amounts to 100 points or 10% of the final course grade. Peer presentation feedback will account for 5% of the final course grade.

The presentations must be uploaded to the appropriate discussion area so that the whole class can view the presentations. The following is the grading criteria for the presentations:

Criteria	Max Points
Effectively described the purpose and significance	20
Effectively provided the background and context	20
Effectively explained the proposed key items	20
Effectively addresses the subject and lessons learned	20
Effectively used audio/visual aids and addressed questions arising	20
Total	100

Rating Scale: Excellent=40, Very Good =35, Good= 30, Fair =25, Poor =20, Not Evident = 0

Course Grading Scale:

Letter Grade	Percent
A	90%-100%
B	80%-89%
C	70%-79%
D	60%-69%
F	0%-59%

Extra Credit: The number of extra credit points and opportunities will be at the sole discretion of the instructor. Graduate students are excluded from extra credit opportunities.

Students with Special Abilities | Students with Disabilities: If you have or believe you have a disability that you may wish to self-identify in order to receive accommodations; you can do so by providing documentation to the Center for Accommodations and Support Services. Please, call 747-5148 or visit Room 106 of the Student Union East. You can also e-mail cass@utep.edu. Appropriate accommodations may then be provided for you.

Incompletes: An incomplete (“I”) will be given only when there is a documented medical or family emergency and only if the student has passed the first half of the course. If an incomplete is given, the student must make arrangements to complete the course with the instructors within five working days after the end of the term. If the student does not make arrangements with the instructors within five working days after the end of the term, an “F” for the course will be submitted.

Drop Deadlines: The last day to drop the course is March 29, 2018. Students are responsible for dropping the course or withdrawing from the university.

Academic Integrity: Cheating and plagiarism are grave breaches of standards of academic integrity. Any use of unauthorized assistance on exams, papers, homework assignments, or other course work constitutes cheating. Knowingly allowing other students to copy one's work is also a severe form of academic dishonesty.

Plagiarism consists of submitting written work that has been developed wholly or partially by someone else. Submitting written work in which the ideas of others have been duplicated or even paraphrased without proper reference to the author is also a form of plagiarism. The acquisition of term papers or other assignments from another source and subsequent presentation of these materials as the student's work is also considered plagiarism.

Late Work Statement: Every day that an assignment is late, the assignment may be reduced by a letter grade until the grade of "F" is reached. Late assignments may not be revised and resubmitted for a better grade.

Course Evaluations: Both a mid-course and final course evaluation will be conducted. The mid-course evaluation will be used to enable the instructors to make adjustments to the remainder of the course. The final evaluation is to evaluate the instructors and enable them to improve the course in subsequent semesters. Please, take the time to provide sufficient and constructive feedback. Thank you for your help!

Grades at Midterm: Students will be given an indication of their standing in the course on a regular basis via Blackboard and through the return of graded work on a timely basis, usually within seven days of a due date. Grades via Blackboard are only visible to the individual student, the instructors, and authorized graduate assistants.

Technical Requirements: For technical requirements for this course, please refer to the Getting Started link in the left side navigation. For technical assistance, or support, for this course, please refer to the Technical Support link in the left side navigation.

Course Copyright Notice: Many of the materials that are posted within this course are protected by copyright law. These materials are only for the use of students enrolled in this course and only for this course. They may not be further retained or disseminated.

We are glad you are in our course and look forward to our class 😊