College of Engineering

Industrial and Systems Engineering

DAEN 460 Syllabus

Section 900 (57443)
Capstone Senior Design
Spring 2026 - College Station

Course Information

Meeting Times: T 12:45-3:15 PM

Meeting Location: ZACH 211

Credit Hours: 3

Instructor Details

Alexander Abuabara
Email: abuabara@tamu.edu
Office Location: ETB 4013
Phone: 979-458-5670
Office Hours
W 1-3 PM or by appointment
Preferred Contact Method
Email
Webpage:
https://engineering.tamu.edu/industrial/profiles/abuabara-alexander.html

Jose Vazquez
Email: vazquez@tamu.edu
Office Location: ETB 3030

Phone: 979-458-2385
Office Hours
T 11:30 AM-12:30 PM
Preferred Contact Method
Email
Webpage:
https://engineering.tamu.edu/industrial/profiles/jvazquez.html

Jon Elizondo
Email: jpe@tamu.edu
Office Location: ETB 3030
Phone: 979-458-6827
Office Hours
TWF 1-1:30 PM
Preferred Contact Method
Email
Webpage:
https://engineering.tamu.edu/industrial/profiles/elizondo-jon.html

Catalog Description

Capstone Senior Design. (1-6). Credit 3. Second course in a two-course sequence for the capstone senior design experience; continuation of work on the senior design project in teams; data collection, analysis, application of data engineering methods and tools and development of recommendations considering design constraints, evaluation of alternative design, and application of relevant standards; engagement in oral presentations and creation of the project report, with relevant feedback provided during the semester. Prerequisite: Grade of C or better in DAEN 459.

Course Prerequisites

Prerequisite(s): Grade of C or better in DAEN 459.

Course Learning Outcomes

The focus for this course is the project each team takes on for a sponsor/client and enhancing each student's communication skills. Students in this course are expected to demonstrate the ABET-based educational outcomes listed below.

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
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.
3. An ability to communicate effectively with a range of audiences.
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.
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 objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Special Course Designation

UWRT - University Required Writing Intensive

This is a designated C course in the curriculum, so to pass the course students must pass the communications content. No matter how high the student's grade, if the communications component is not passed, the student fails the course.

Textbook and/or Resource Materials

This material Is: Recommended
Fundamentals of Data Engineering
Subtitle: Plan and build robust data systems
ISBN: 978-1-098-10830-4
Authors: Joe Reis, Matt Housley
Publisher: O'Reilly Media
Publication Date: July 2022
Edition: First Edition
URL for Resource: https://catalog.library.tamu.edu/Record/in00004362604

This material Is: Recommended
Designing Data-Intensive Applications
Subtitle: The big ideas behind reliable, scalable, and maintainable systems
ISBN: 978-1-449-37332-0
Authors: Martin Kleppmann
Publisher: O'Reilly Media
Publication Date: March 2017
Edition: First Edition

Grading Policy

Course Grading Scheme

Team Grades	Weight on the Final Grade	Grade Type
Mini Management Packet	5%	Technical
Phase 1-3 Presentations	15% (5% each)	

Team Grades	Weight on the Final Grade	Grade Type
Phase 4 Presentation	10%	
Showcase Poster	5%	
Communication Log	2% (1% each)	
Final Report	18%	
Individual Grades		
Phase Presentations	15%	Communication
Writing Assignments	18%	Writing
Peer Performance	12%	

- Grades will be maintained in the Gradebook on Canvas.
- All assignments must be submitted for you to receive your final grade.
  - If technical issues prevent submission, send your assignment from your @tamu.edu email to the instructors' @tamu.edu email as a backup.
  - The subject line must include the course number (DAEN 460) and assignment name.
- This is a designated C course in the curriculum, so to pass the course students must pass the communications content. No matter how high the student's grade, if the communications component is not passed, the student fails the course.
- Late work will not be accepted unless Student Rule 7 applies. When possible, please notify the instructors in advance if you anticipate that Student Rule 7 will apply to an assignment.
  - For Writing Assignments only, submissions will be accepted up to two days late with a 1-point penalty applied for each day late.
- Disagreements regarding a grade received on any graded material must be discussed within one week of the graded material's return. No grade will be changed beyond this limit. If a regrade is requested, the entire submission will be regraded.

- Peer performance will be determined by an anonymous survey at the end of the course.

- Grades will be a combination of team and individual grades as reflected in the chart.

- Grades will be calculated by totaling the points you earn and comparing them to the max. possible points.

- Grades assigned are A: 90%–100%, B: 80%–89.9%, C: 70%–79.9%, D: 60%–69.9% and F for less than 60%.

Late Work Policy

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempt from the late work policy ([Student Rule 7](#)).

Course Specific Late Work Policy

- Late work (submitting a deliverable after the deadline) will not be accepted unless Student Rule 7 applies. Late work will be assigned a score of zero.

- For Writing Assignments only, submissions will be accepted up to 2 days late with a 1-point penalty applied for each day late. Exceptions will only be made if Student Rule 7 applies.

- When possible, please notify the instructors in advance if you anticipate that Student Rule 7 will apply to an assignment.

Course Schedule

Weekly Schedule

Phase	Week	Date	Topic
Getting Started	1	1/13	Introductions
	2	1/20	Integrate Engineering Design ("The Toaster Project")
1-Discover	3	1/27	Phase 1 Kickoff

Phase	Week	Date	Topic
	4	2/3	Phase 1 Presentations - Groups BH and COE
	5	2/10	Phase 1 Presentations - Groups ML
2-Define	6	2/17	Phase 2 Kickoff
2-Define	7	2/24	Phase 2 Presentations - Groups BH and COE
	8	3/3	Phase 2 Presentations - Groups ML
		3/7-15	Spring Break
3-Develop	9	3/17	Phase 3 Kickoff
3-Develop	10	3/24	Phase 3 Presentations - Groups BH and COE
	11	3/31	Phase 3 Presentations - Groups ML
4-Deliver	12	4/7	Phase 4 Kickoff
4-Deliver	13	4/14	Phase 4 Presentations - Groups BH and COE
	14	4/21	Phase 4 Presentations - Groups ML

- We will make every effort to follow the schedule outlined below. Because of the nature of each project, the pacing and distribution of content may be slightly adjusted to better support your progress. Accordingly, some flexibility may be necessary as the semester unfolds. All official due dates will be posted on Canvas and will remain fixed unless a formal written notice is provided to all students through both Canvas and email.

- Class attendance is required of all students for introductory (first two weeks) and phase kick-off sessions (as noted on schedule). For team presentation days, attendance is required for the entire class time for all team members in the specified group. Attendance on presentation days for the alternate group is allowed and encouraged.

Additional Course Information

- **Be nice. Be honest. Don't cheat. Adhere to all University Policies.**
- You are all important to us!
  - E-mail is the primary method of communication.

- Include the course number (DAEN 460) in any email subject so we can prioritize it.
  - Responses should not be expected after 5:00 PM, on weekends, or on holidays.
- The course faculty includes the lead instructor and communications instructors.
  - The lead instructor is responsible for the capstone design program and for providing feedback to teams on the technical aspect of their projects.
  - The course writing and communication instructors are responsible for executing the course's communication and writing components.
- Each team is required to select a faculty advisor. The faculty advisor is a Texas A&M faculty member who offers guidance on the project. Normally, the faculty advisor is selected by the team for their expertise in the area of their project.
- Teams should meet with the project sponsor's point of contact (POC) at least once a month, adjusting as needed for the sponsor's schedule. Meetings can be by phone or video call (email doesn't count).
  - All team members should attend unless there's a university-excused absence or a class conflict.
  - The team and sponsor will coordinate meeting times, and only the sponsor can cancel. If a meeting is canceled or the sponsor feels the schedule isn't working, note it in your technical presentations and discuss a solution with the lead instructor.
- Each team is responsible for ensuring that its project remains on schedule and meets established milestones. Your semester respects a classic ABET-aligned design lifecycle. The course structure intentionally reflects standard professional engineering reviews, progressing through concept development, preliminary design, critical design, and final project delivery.
- Technical review presentations are formal (prepared slides and remarks), graded events with all team members presenting and all team members participating.

- Technical presentation slides must be uploaded to Canvas no later than 5:00 PM the day prior to the technical review session (per deliverables schedule).
- Every team member should contribute equally to answering questions at the end of presentations.
    - During technical review presentations:
        - The lead instructor will provide feedback on the technical aspects of the project,
        - The communication instructors will provide feedback on presentation design and delivery.
- The Engineering Project Showcase is a mandatory participation event for all teams and all team members. Each team will prepare a video demonstrating their capstone project. Industry judges assess each team's work, and prize money is awarded to the top teams.
- Every step matters and each builds on the next: stay engaged, keep up, ask questions.
    - Work is cumulative and requires consistent effort. Learning takes steady effort, so start early. Waiting to the last minute doesn't produce the best results. All assignments must be completed carefully and on time.
    - Engineers turn data into meaningful information, practice here, and get prepared! Clear, well-organized work is as important as the content itself. Presentation quality (e.g., organization, clarity, good use of tables, graphs, maps, and relevant ideas and discussion) is part of grading.
    - Use others' ideas to build your own but always credit your sources: good scholarship means giving credit where it's due.
- No audio or video recording without permission; it's a conduct violation otherwise.
- Headphones and non-class-related browsing are not permitted during class.

AI Statement

Artificial intelligence AI (including tools such as chatbots and text, code, image, audio, and video generators) is a growing part of modern academic and professional practice. In this course, AI may be used responsibly and within defined limits. You may use AI for brainstorming and for reviewing your own work for grammar, punctuation, spelling, clarity, and brevity.

Use AI in ways you would feel comfortable explaining to your instructor and classmates. AI should support your learning process, not replace it. There are no "silly" questions in this course, so do not avoid asking questions, participating in class, or seeking help in favor of relying on AI.

You may NOT use AI to write your assignments for you, solve broad problems or programming tasks, or generate analyses or substantive content unless explicitly allowed by the instructors. All submitted work must always reflect your own independent effort. Misuse of AI may be treated as a violation of academic integrity.

Students are NOT allowed to pass any confidential information from sponsors through AI.

Technology Support

Technology Services (IT) - Main Campus

- Hours: 24/7
- Phone: (979) 845-8300
- Email: helpdesk@tamu.edu
- Call/Chat/Email/visit: https://it.tamu.edu/help

Canvas LMS Technical Support

- Hours: 24/7/365
- Phone: (877) 354-4821
- Email: support@instructure.com

Support is available by clicking the Help button at the far left in the Canvas global navigation menu. Canvas Resources are also linked on the home page of every Canvas course.

University Policies

This section outlines the university-level policies that must be included in each course syllabus. The TAMU Faculty Advisory Council established the wording of these policies.

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (Section 20.1.2.3, [Student Rule 20](#)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at [aggiehonor.tamu.edu](#).

University Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7 i](#)n its entirety for information about excused absences, including definitions, and related documentation and timelines.

Course Specific Attendance Policy

- Class attendance is required of all students for introductory (first two weeks) and phase kick-off sessions (as noted on schedule).

- For team presentation days, attendance is required for the entire class time for all team members in the specified group.

- Attendance on presentation days for the alternate group is allowed and encouraged.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Notice of Nondiscrimination

Texas A&M University is committed to providing safe and non-discriminatory learning, living, and work environments for all members of the University community. The University provides equal opportunity to all employees, students, applicants for employment or admission, and the public, regardless of race, color,

sex (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, or veteran status.

Texas A&M University will promptly, thoroughly, and fairly investigate and resolve all complaints of discrimination, harassment (including sexual harassment), complicity, and related retaliation based on a protected class in accordance with [System Regulation 08.01.01](), [University Rule 08.01.01.M1](), [Standard Administrative Procedure (SAP) 08.01.01.M1.01](), and applicable federal and state laws. In accordance with Title IX and its implementing regulations, Texas A&M does not discriminate on the basis of sex in any educational program or activity, including admissions and employment.

The following person has been designated to handle inquiries and complaints regarding the non-discrimination policies: Jennifer M. Smith, TAMU Associate VP & Title IX Coordinator at YMCA Ste 108, College Station, TX 77843, 979-458-8407, or email [civilrights@tamu.edu](). For other reporting options, visit the [U.S. Department of Education Office for Civil Rights Complaint Assessment System]() to locate the address and phone number of the office that serves your area, or call 1-800-421-3481.

Civil Rights, Free Speech, and Title IX Policies

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit discrimination and harassment based on an individual's race, color, sex, (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, veteran status, or any other legally protected characteristic. This includes forms of sex-based violence, such as sexual assault, sexual harassment, sexual exploitation, dating/domestic violence, and stalking.

Students can report discrimination/harassment, access supportive resources, or learn more about their options for resolving complaints on the [University's Civil Rights & Title IX webpage]().

Students should be aware that all university employees (except medical or mental health providers) are mandatory reporters, which means that if they observe, experience or become aware of an incident that they reasonably believe to be discrimination/harassment alleged to have been committed by or against a person who was a student or employee at the time of the incident, the employee must report the incident to the university.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability-related needs with Disability Resources and their instructors as soon as possible.

To request academic accommodations, contact the designated ADA office based on your location:

- Texas A&M University, College of Nursing, College of Dentistry, Irma Lerma Rangel College of Pharmacy College Station, College of Medicine, School of Public Health, Institute of Biosciences and Technology, EnMed Program, Bush School in Washington DC, Mays Business School – CityCentre, TAMU Engineering Academies, Texas A&M University Higher Education Center at McAllen and Texas A&M University at Galveston should contact Disability Resources at (979) 845-1637 or disability@tamu.edu.
- Texas A&M University School of Law should contact the Office of Student Affairs at (817) 212-4111 or law-disability@law.tamu.edu to request accommodations.
- Irma Lerma Rangel College of Pharmacy in Kingsville should contact the Disability Resource Center at Texas A&M University-Kingsville at (361) 593-3024 or drc.center@tamuk.edu to request accommodations.

- Texas A&M University College of Veterinary Medicine & Biomedical Sciences in Canyon should contact the Office of Student Accessibility at West Texas A&M University – Canyon at (806) 651-2335 or osa@wtamu.edu.

If you are experiencing difficulties with your approved accommodations, contact the office responsible for approving your accommodations or the Texas A&M ADA Coordinator Julie Kuder at ADA.Coordinator@tamu.edu or (979) 458-8407.

Pregnancy Accommodations

Texas A&M provides reasonable accommodations to students due to pregnancy and/or related conditions, such as childbirth, recovery, and lactation. Students should contact the University's Pregnancy Coordinator as soon as they become aware of the need for accommodation. Depending on the circumstances, accommodations could include extended time to complete assignments or exams, changes in course sequence, or modifications to the physical classroom environment.

Texas A&M will also allow a voluntary leave of absence, ensure the availability of lactation space, and maintain grievance procedures to provide for the prompt and equitable resolution of complaints of sex discrimination. For information regarding pregnancy accommodations, email TIX.Pregnancy@tamu.edu.

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors influencing a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care practices by utilizing the resources and services available through University Health Services. The TELUS Health Student Support app provides access to professional counseling in multiple languages anytime, anywhere by phone or chat, and the 988 Suicide & Crisis Lifeline offers 24-hour emergency support at 988 or 988lifeline.org.

Texas A&M College Station

Students needing a listening ear can contact University Health Services at 979.458.4584. Call 911 or visit your nearest emergency room if you are currently experiencing a life-threatening situation or if your safety is at risk. 24-hour emergency help is also available through the 988 Suicide & Crisis Lifeline (988) or at 988lifeline.org.

Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records, and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings.

Currently enrolled students wishing to withhold any or all directory information items can do so within howdy.tamu.edu using the Directory Information Withholding Form. The complete FERPA Notice to Students and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR, or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees, honors and awards received, participation in officially recognized activities and sports, medical residence location, and medical residence specialization.