

AE200 Engineering Analysis of Aerospace Systems
Fall 2021

1. Course Information

Instructor(s): Mehrdad Khosravi, Ph.D.

Aerospace Engineering Department
C.W. Davidson College of Engineering

Course Code:	AE 200: 50074
Section:	ENGR 201 (Sec 02)
Class Hours & Location:	Tuesday/Thursday 8:30am to 9:45am
Office Hours:	Tuesday/Thursday 8:00-8:30, (by appointment)
Office Location:	Same as the class zoom.
E-mail:	mehrdad.khosravi@sjsu.edu
Preferred Contact:	E-mail
Instructors' web page:	Course material will be on Canvas

2. Course Description:

a. Course Overview and Description:

The course will cover advanced topics in differential equations. Linear algebra, and Probability and Statistics that are of interest to engineers and scientists. The focus will also be on the application of the acquired concepts for formulating and solving problems effectively. The course will be structured to address the needs and interests of engineers from a variety of disciplines including Engineering Management, Biomedical Devices, Electronic Materials and Devices, Environmental Health and Safety, Green Technology, and other topics areas as appropriate.

b. Prerequisites: In good academic standing, and Math 129A and Math 133A or equivalent if given as a prerequisite on official SJSU admission letter.

c. Required and recommended texts, readers, or other reading materials:

1. Advanced Engineering Mathematics, 10th Edition, Erwin Kreyszig, WILEY, ISBN: 9780470458365
2. ADVANCED ENGINEERING MATHEMATICS, by Peter O'Neal, WILEY, Ed 8th, ISBN: 9781305635159

d. Student learning objectives for the course:

1. To learn how to formulate and apply differential equation, linear algebra, and probabilistic models and methods to characterize and solve engineering-related problems.

2. To learn how statistical methods are used to design and predict the outcome of theoretical and experimental data.
3. To relate physical, chemical, biological, electrical and mechanical problems and trends to mathematical methods and statistical distributions.

3. Course requirements:

a. Homework:

There are several homework/project assignments given throughout the quarter. Total weight of these assignments is 30% of your final grade. No late work will be accepted.

b. Exams:

You will have one midterm exam counting as 30% of your grade. There are absolutely no makeup tests. You will get zero for the missed test. No makeups for the final can be provided. The final grade cannot be dropped.

c. Class Participation:

Attendance in Zoom meetings is mandatory. There will be information shared in the meetings that may not be in the recordings.

5. Grades:

Homework/projects/Oral exam	%50
Midterm	%20
Final	%30
Total	100%

a. Grading information:

The mapping between a numeric grade and a letter grade is given in the table below. Any and all grade questions/disputes must be brought to the attention of the instructor within 30 days from the date that each exam and homework is returned to the class. Questions regarding the final exam must be brought to the attention of the instructor within 30 days from the date that final grades are posted by the university.

94% and above	A
90% - 93%	A-
87% - 89%	B+
84% - 86%	B
80% - 83%	B-
77% - 79%	C+
74% - 76%	C
70% - 73%	C-
67% - 69%	D+
64% - 66%	D
60% - 63%	D-
below 60%	F

4. Tentative course calendar including exam dates:**(Please note that the course calendar is "subject to change with fair notice")**

Week of	SUBJECT/TOPIC	ASSIGNMENT/NOTES
8/23	Introduction First Order ODEs and Models	1.1 #10,12,14,18 1.3 #2,5,7,14,15,21,25, 1.4 #2,3,5,11,12, 1.5 # 7,9,21,30 1.6 #11,13
8/30	Second Order ODEs (Homogenous) and Models	2.1 #12,14 2.2 #38 2.4 #10 2.5 #12,14,16 2.6 #6,12,14 2.7 #2,5,12 2.8 #6,10,12,16,20 2.9 #10,12,16,18
9/6	Higher order ODEs	3.1 #4,6,8,12 3.2 #2,6,10,12 3.3 #2,6,10,12
9/13	Mini Project 1	
9/20	Linear systems, Linear Transformations	7.2 #25(except a), 30 7.3 #18,20,24 7.4 #4,6,17,20,26 7.7 #8,9,10,22,24 7.8 #2,6,8
9/27	Eigen value/vectors Systems of ODEs	8.1 #6,10,12 8.2 #2,6,8,10 8.3 #2,4,8 8.4 #4,12 4.1 #2,8,12,14 4.3 #2,6,10,14,18,19 4.4 # 13,16
10/4	Review, Midterm 1	
10/11, 10/18	Series solutions Special functions	5.1 #2,4,8,10,12 5.2 #2,10 5.3 #2,4,5 5.4 # 5.5 #
10/25	Fourier Series	
11/1	Fourier transfer	11.1 #16,20 11.2 #12,26 11.3 #12,17 11.7 #8,12,18 11.8 #4,12 11.9 #4,8,16,20,21,22
11/8	PDEs	12.1 # 4,8,12,14,18,22 12.2 12.3 #6,10
11/15, 11/22	Mini Project 2	
11/29	Numeric methods	19.3# 3,5,11 19.5#3,5,8,10,16 20.1 #6,12,17EC,18(a,e) 20.2 #4,6(b,c),8 20.3 #4,5,8,11 20.5 #4,5,6,10 20.6
	FINAL EXAM: Friday December 10th 7:15am to 9:30am	

6. University, College, or Department Policy Information:

a) Academic integrity statement (from Office of Judicial Affairs):

"Your own commitment to learning, as evidenced by your enrollment at San José State University and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty are required to report all infractions to the Office of Judicial Affairs. The policy on academic integrity can be found at <http://www2.sjsu.edu/senate/S04-12.pdf>

b) Campus policy in compliance with the Americans with Disabilities Act:

"If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities register with DRC to establish a record of their disability."

c) Proctoring Software and Exams:

Exams will be proctored in this course (either through Respondus Monitor and LockDown Browser or other methods). Please note it is the instructor's discretion to determine the method of proctoring. If cheating is suspected the proctored videos may be used for further inspection and may become part of the student's disciplinary record. Note that the proctoring software does not determine whether academic misconduct occurred, but does determine whether something irregular occurred that may require further investigation. Students are encouraged to contact the instructor if unexpected interruptions (from a parent or roommate, for example) occur during an exam.

d) Recording Zoom Classes

This course or portions of this course (i.e., lectures, discussions, and student presentations) will be recorded for instructional or educational purposes. The recordings will only be shared with students enrolled in the class through Canvas. The recordings will be deleted at the end of each week. If, however, you would prefer to remain anonymous during these recordings, then please speak with the instructor about possible accommodations (e.g., temporarily turning off identifying information from the Zoom session, including student name and picture, prior to recording).

Students are not allowed to record without instructor permission

Students are prohibited from recording class activities (including class lectures, office hours, advising sessions, etc.), distributing class recordings, or posting class recordings. Materials created by the instructor for the course (syllabi, lectures and lecture notes, presentations, etc.) are copyrighted by the instructor. This university policy ([S12~7](#)) is in place to protect the privacy of students in the course, as well as to maintain academic integrity through reducing the instances of cheating. Students who record, distribute, or post these materials will be referred to the Student Conduct and Ethical Development office. Unauthorized recording may violate university and state law. It is the responsibility of students that require special accommodations or assistive technology due to a disability to notify the instructor.

e) Technology Requirements

Students are required to have an electronic device (laptop, desktop or tablet) with a camera and built-in microphone. SJSU has a free [equipment loan](#) program available for students.

Students are responsible for ensuring that they have access to reliable Wi-Fi during tests. If students are unable to have reliable Wi-Fi, they must inform the instructor, as soon as possible

or at the latest one week before the test date to determine an alternative. See [Learn Anywhere](#) website for current Wi-Fi options on campus.

f) Zoom Classroom Etiquette

- **Mute Your Microphone:** To help keep background noise to a minimum, make sure you mute your microphone when you are not speaking.
- **Be Mindful of Background Noise and Distractions:** Find a quiet place to “attend” class, to the greatest extent possible.
 - Avoid video setups where people may be walking behind you, people talking/making noise, etc.
 - Avoid activities that could create additional noise, such as shuffling papers, listening to music in the background, etc.
- **Position Your Camera Properly:** Be sure your webcam is in a stable position and focused at eye level.
- **Limit Your Distractions/Avoid Multitasking:** You can make it easier to focus on the meeting by turning off notifications, closing or minimizing running apps, and putting your smartphone away (unless you are using it to access Zoom).
- **Use Appropriate Virtual Backgrounds:** If using a virtual background, it should be appropriate and professional and should NOT suggest or include content that is objectively offensive or demeaning.

g) Testing Environment: Setup

- No earbuds, headphones, or headsets visible.
- The environment is free of other people besides the student taking the test.
- If students need scratch paper for the test, they should present the front and back of a blank scratch paper to the camera before the test.
- No other browser or windows besides Canvas opened.
- A workplace that is clear of clutter (i.e., reference materials, notes, textbooks, cellphone, tablets, smart watches, monitors, keyboards, gaming consoles, etc.)
- Well-lit environment. Can see the students’ eyes and their whole face. Avoid having backlight from a window or other light source opposite the camera.

h) Testing Environment: Scan

Before students can access the test questions, they are expected to conduct a scan around their testing environment to verify that there are no materials that would give the student an unfair advantage during the test. The scan will include:

- the desk/work-space
- a complete view of the computer including USB ports and power cord connections
- a 360-degree view of the complete room

Students must:

- Remain in the testing environment throughout the duration of the test.
- Keep full face, hands, workspace including desk, keyboard, monitor, and scratch paper, in full view of the webcam

i) Technical difficultiesInternet connection issues:

Canvas autosaves responses a few times per minute as long as there is an internet connection. If your internet connection is lost, Canvas will warn you but allow you to continue working on your exam. A brief loss of internet connection is unlikely to cause you to lose your work. However, a longer loss of connectivity or weak/unstable connection may jeopardize your exam.

Other technical difficulties:

Immediately email the instructor a current copy of the state of your exam and explain the problem you are facing. Your instructor may not be able to respond immediately or provide technical support. However, the copy of your exam and email will provide a record of the situation.

Contact the SJSU technical support for Canvas:

Technical Support for Canvas Email: ecampus@sjsu.edu Phone: (408) 924-2337 https://www.sjsu.edu/ecampus/support/

If possible, complete your exam in the remaining allotted time, offline if necessary. Email your exam to your instructor within the allotted time or soon after.

j) Academic Dishonesty

Students who are suspected of cheating during an exam will be referred to the Student Conduct and Ethical Development office and depending on the severity of the conduct, will receive a zero on the assignment or a grade of F in the course. Grade Forgiveness does not apply to courses for which the original grade was the result of a finding of academic dishonesty.

k) Contacting Instructors After The Semester Is Over:

After the semester is over, you might have a need to contact the instructor to discuss any number of items. These include your grade, assignments that you believe might not have been recorded by the instructor, and so forth. Students should resolve questions or issues about course work and grades as soon as possible.

You should first try to contact the instructor using the information contained in the Greensheet. Document your attempts to contact the instructor, such as cc-ing the department chair/director on emails, leaving written messages in the instructor's office mail box, voice messages, and so forth. If you do not receive a response within a two week period, then contact the department chair/director and provide documentation of your efforts to reach the instructor. Document your efforts to contact the department chair/director. If you do not receive a response from the department chair/director within two weeks, then contact the College of Engineering Associate Dean of Undergraduate Studies for undergraduate courses, Associate Dean of Graduate Studies for graduate courses. Document your attempts to contact the appropriate Associate Dean. If you do not receive a response within two weeks, then contact the office of the Dean of the College of Engineering. You should certainly receive a timely response from the Dean's office.

Please following the above procedure for contacting your instructor. Failing to do so might result in the information needed to address your question/issue becoming unavailable or unreliable. Even if you need to leave the area immediately after completing your course work, send some communication to the instructor and department that you wish to discuss the matter at a later but not too distant in the future. Get confirmation that your communication has been received.

l) Change of Grade:

The university now requires change of grade forms to be submitted within one semester following the semester in which the course requiring a grade change was taken. For example, a change of grade form for a course taken in Fall 2008, is due by the end of the Spring 2009 semester. After the Spring 2009 semester, the university will not accept a grade change for courses taken in Fall 2008 or earlier semesters. A change of grade form for a course taken in Spring 2009 is due by the end of the Fall 2009 semester. After the Fall 2009 semester, the university will not accept a grade change for courses taken in Spring 2009 or earlier semesters.

Grade changes will NOT be approved, under any circumstances, to change a student's pending or current probation or disqualification status. The only acceptable reasons for a grade change is an instructor's error in calculating a grade, or omission of graded course assignments in the calculation of a student's grade.