

MECH306: Equation Solving Techniques Fall 2023

Instructor: Mr. Tristen Svendsen

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Office: OCNL 416

Office hours: See Canvas for OHs
OHs also available outside OCNL 416

Sections: Discussion (Lang 104):
Tues/Thur 1-1:50PM
Activity (Lang 104):
Mon 2-3:50PM

Course Description and Goals

Numerical analysis, analytical methods, and equation solving techniques for mechanical engineering design. Structured problem formulation, parametric studies, introduction to programming concepts, and optimization for design.

Prerequisites

MECH 208 and MATH 260

Student Learning Objectives

To learn how to apply a range of numerical methods for solving algebraic and differential equations that occur in engineering analysis and design. To use computer programming concepts and apply them to solve engineering problems. To learn how to use equation-solving software to solve algebraic and differential equations.

Course Materials

Required course materials include:

- Textbook
 - Applied Numerical Methods with MATLAB for Engineers and Scientists, 5th edition by Steven C. Chapra, ISBN 13: 9781264162604**
- Engineer's pad
- Scientific calculator
- Laptop

Required software: Matlab and Excel. Also recommend: Google Drive, Dropbox or a similar means of cloud-based storage.

Note that lost, stolen, or corrupted laptops, tablets, or flash drives are not an accepted excuse for missed work.

Course Usage of Canvas

Copies of the course syllabus, all assignments, schedule, and due dates can be found on Canvas. You are responsible for regularly checking Canvas for updates and announcements, which can be accessed through the [Chico State Portal](#).

Classroom Etiquette and Attendance

During classroom sessions, students are expected to be completely engaged and committed to the class (no personal web surfing, messaging, social media, etc.). Attendance is required and students will receive credit for active and engaged participation in the course. If you are unable to attend a class due to an emergency or any other reason, please notify the instructor promptly (before class if possible).

Dropping and Adding

You are responsible for understanding the policies and procedures about add/drops, academic renewal, etc., found in the [CSU Chico University Catalog](#).

Grading Policy

Your grade will be based on:

- 25% Homework
- 25% In-Class Assignments
- 50% Exams

A	A-	B+	B	B-	C+	C	C-	D+	D	F
>= 93.3	93.2 to 89.5	89.4 to 86.7	86.6 to 83.3	83.2 to 79.5	79.4 to 76.7	76.6 to 73.3	73.2 to 69.5	69.4 to 66.7	66.6 to 59.5	< 59.5

Homework

Homework will be assigned regularly throughout the semester and is an integral part of the learning experience for this class. Unless otherwise specified, homework is due the second class meeting after it is assigned. For example, homework assigned on Monday is due on the following Friday; homework assigned on Wednesday is due the next Monday. This algorithm allows for questions on assigned homework during the intermediate class meeting. See the Homework Guidelines document for formatting requirements.

In-Class Assignments

Assigned during Activity period and designed to be completed in class. Students are required to bring laptops to class (and to be sure that they are charged). Students may work independently or in small groups and may ask for help anytime. Assignments are due at the end of class period (plus 40 minutes) and are graded Pass/Fail. Failure to bring a laptop to the Activity period will result in a 0 for that day's In-Class assignment.

Tests

There will be three tests, two during the semester and one during exam week. Tests will be closed book and closed note. A formula sheet will be posted to Canvas in advance of each exam. Students are strongly encouraged to print the formula sheet and bring it to the exam. Students can add any additional information they wish to the formula sheet. Handheld scientific calculators will be allowed for the exams. Laptops, tablets, smart phones, or other connected devices will not be permitted.

Late Work

Homework is due at the beginning of the designated class period. Assignments will be accepted late the same day with a one letter grade deduction. Homework submitted after the first few minutes of class is considered late and will receive a letter grade deduction (be on time). Assignments will not be accepted after their due date. Homework cannot be submitted in stages (the initial submission is all that is accepted). Assignments are not accepted via email.

Electronic Submissions

Certain assignments will be designated for electronic submission which will be handled via Assignments in Canvas. Students are strongly encouraged to verify submissions made through Canvas. It is the student's responsibility to ensure the correct file has been submitted for the assignment. No accommodation is made for an incorrect submission.

University Policies and Campus Resources

Academic Integrity

Students are expected to be familiar with the University's Academic Integrity Policy. Your own commitment to learning, as evidenced by your enrollment at California State University, Chico, and the University's Academic Integrity Policy requires you to be honest in all your academic coursework. Faculty members are required to report all infractions to the Office of Student Judicial Affairs. The policy on academic integrity and other resources related to student conduct can be found on the [Student Judicial Affairs website](#).

Artificial Intelligence

AI writing tools are not permitted for any stage or phase of work in this class. If you use these tools, your actions will be considered academically dishonest, and a violation of [Chico State's Integrity Policy](#) and you may be reported to the [Office of Students Rights and Responsibilities](#).

IT Support Services (Optional)

Computer labs for student use are located on the first and fourth floor of the Meriam Library, Room 116 and 450, Tehama Hall Room 131, and the Bell Memorial Union (BMU) basement. You can get help using your computer from IT Support Services; contact them through the [ITSS web site](#). Additional labs may be available to students in your department or college.

Student Services (Optional)

Student services are designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. Students can find support for services such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. Student services information can be found on the [current students page of the CSU Chico web site](#).

Americans with Disabilities Act

If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make 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. Please also contact Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.

[Accessibility Resource Center](#)

530-898-5959

Student Services Center 170

arcdept@csuchico.edu

Student Learning Center (Optional)

The mission of the Student Learning Center (SLC) is to provide services that will assist CSU, Chico students to become independent learners. The SLC prepares and supports students in their college course work by offering a variety of programs and resources to meet student needs. The SLC facilitates the academic transition and retention of students from high schools and community colleges by providing study strategy information, content subject tutoring, and supplemental instruction. The University Writing Center has been combined with the Student Learning Center. You can also visit the [Student Learning Center web site](#).

A Final Note on Equity, Diversity, and Inclusion

It is important to me that this course is accessible to each and every one of you. If there is any reason why the format of the course creates unique difficulties to you, please find time to talk with me. This includes those that have a physical or learning disability, those who have other emotional or physiological challenges, those of you who have past experiences that make college attendance or class content anxiety producing, those of you who are first-generation students and may not understand the university system, those of you who feel you can't actively participate, those of you who have more responsibility than the typical college student (such as dependent parents, children, or an especially heavy workload outside of school), those of you with financial hardships, and any other situations that I might not be able to anticipate.

My objective in this course is to assess your ability to learn and apply knowledge related to this subject matter. This should never be a factor of anything other than your own talents and efforts. The earlier you come and see me, the more I can do to try to work with you to alleviate any unique disadvantages you may face. I would prefer that you come to speak with me in the first two weeks.