Professor:	Joseph Greene, Ph.D.
Contact:	O'Connell 416 / 530.898.4977 / jpgreene@csuchico.edu
Office Hours:	Current office hours are posted on Blackboard and also on the schedule card outside my door. My current schedule can also be viewed on the department website.
Course Description:	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.
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.
Prerequisites:	MECH 208 and MATH 260
Textbook:	Applied Numerical Methods with MATLAB for Engineers and Scientists, 4th edition by Steven C. Chapra, ISBN 13: 978-0073401102
Class Meetings:	Tuesday & Thursday; 1:00 to 1:50 PM; LANG 200 Lecture (White board, PowerPoint, Software Demos) Friday; 2:00 to 3:50 PM; O'Connell 124 Lecture followed by In-Class Activity and Assignment
Course Materials:	Required course materials include textbook, engineer's pad, scientific calculator, and laptop computer. Primary software utilized will be Matlab and Excel. Also recommend Google Drive, Dropbox or a similar means of cloud-based storage of documents. Note that lost, stolen, or corrupted laptops, tablets, or flash drives is not an accepted excuse for missed work.
Blackboard Learn:	This course will make use of the Blackboard Learn course management system. All PowerPoint lectures, handouts, homework solutions, grades, announcements, etc. will be available on the course Blackboard page.

Grading:		
	Homework	20%
	In-Class Assignments	20%
	Tests	60%

Grade Scheme:

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 Tuesday is due on the following Friday; homework assigned on Thursday is due the next Tuesday. 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 Blackboard 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 Submission: Certain assignments will be designated for electronic submission which will be handled via *Assignments* in Blackboard Learn. Students are strongly encouraged to verify submissions made through Blackboard Learn. It is the student's responsibility to ensure the correct file has been submitted for the assignment. **No accommodations are made for incorrect submissions**.

Email:	In the event I need to contact members of the class or make urgent announcements regarding tests, class cancellations, etc., it will be done via your WildcatMail email account. I do not plan to use this method of communication frequently, but I do expect that information sent this way will be received. University policy requires students to monitor their WildcatMail accounts. If you have another preferred email provider, you may set up automatic forwarding of your WildcatMail to that address. Details are available at www.csuchico.edu/itss/.
Academic Integrity:	Academic integrity is taken seriously at the University, in this College, and Department, and by your professor. Violations will be referred to student judicial affairs and can result in penalties ranging from failure of the course to long term suspension from the university. See the *Academic Integrity* document for additional information.
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. ARC is located at Student Services Center 170 and may be reached at 530-898-5959 or arcdept@csuchico.edu.

Week	**Chapter**	**Homework++**
1. Aug 27	Math Modeling (I)	Chap 1
2. Sep 3	Roundoff Errors	Chap 4
3. Sep 10		
4. Sep 17	Roots: Bracketing (II)	Chap 5
5. Sep 24	Roots: Open Method	Chap 6
6. Oct 1	***Test 1: (Friday)***	
	Optimization	Chap 7
7. Oct 8	Linear Algebraic Eqn (III)	Chap 8
7. Oct 8	Gauss Elimination	Chap 9
8. Oct 15	Matrix Inverse	Chap 11
9. Oct 22	Iterative Methods	Chap 12
10. Oct 29	***Test 2: (Friday)***	
11. Nov 5	Linear Regression (IV)	Chap 14
12. Nov 15	Numerical Integration (V)	Chap 19
13. Nov 19		
***Nov 26	**Thanksgiving Break (No School)***	
14. Dec 4	*Numerical Differentiation*	*Chap 21*
15. Dec 11	Ordinary Diff Equat. (VI)	Chap 24
16. Dec 17	**TBD Final Exam**	

++ Note: Homework will be due on Tuesday