

Santa Clara University
COEN 45, MATLAB Programming
Winter Quarter, 2011

Class sections

63403	Lecture	T/Th 8:00-9:45	ENGR 106
64307	Lecture	T/Th 11:50-13:35	ENGR 106
64281	Lab	T 14:15-17:00	ENGR 608a
64282	Lab	W 14:15-17:00	ENGR 608a
64283	Lab	Th 14:15-17:00	ENGR 608a

You should be signed up for one of the lab sessions. You may attend a different lab session but please notify me or the TA if you do.

Catalog course Description

Introduction to computer operating systems. Elements of computer programming in MATLAB, including input/output, branching and loops, iterative solutions, function definition and invocation, top-down design. Programming of elementary mathematical operations. Applications to engineering problems. Co-requisite: MATH 21.

Instructor

- Warren C. Gibson, Ph.D., lecturer at Santa Clara since 2002. email: warren@gibson2.com. Telephone: none. Office hours TBA. Class web site: www.gibson2.com/coen45
- Lab assistants: to be announced

Text and software

- Required: Amos Gilot, MATLAB: An Introduction with Applications, 4th ed., Wiley 2010. Available in paper or electronic form.
- Optional but highly recommended: MATLAB software, Student Edition

Labs

Lab assignments are to be completed during the lab sessions unless you get permission to do otherwise. Assignments will be posted on the class web site and will be discussed in class in advance.

Homework

most homework assignments will require a signed printout of a MATLAB script or diary file. Homework will be posted on the class web site and will be due in class on each Tuesday unless otherwise indicated.

Grading

Percentages (subject to minor changes): Labs 25%, Homework 25%, Midterm exam 20%, Final exam 30%.

Schedule of Topics

Days	Topic(s)	Text
Jan 4,6	Introduction to computers, programming and MATLAB. Command line usage, variables, assignments, expressions, scripts. Help facilities.	1.1-1.9
Jan 11, 13	Arrays, indexing, sub-arrays, extraction, concatenation, array functions, vectors, scalars, string arrays, <code>find</code>	2.1-2.9; writeup
Jan 18, 20	Matrix algebra: add, subtract, multiply, invert, transpose, concatenate. Element-by-element operations.	3.1-3.8
Jan 25, 27	Functions: inputs, input checking, outputs. Basic 2-D plotting	6.1-6.7; 5.1
Feb 1, 3	Functions continued; midterm exam	
Feb 8, 10	testing and looping: if, for, while, switch, break	7.1-7.7
Feb 15, 17	function functions	6.9
Feb 22, 24	Further plotting options; data transfer	5.3-5.5, 8.3; writeup
Mar 1, 3	Integration of ODE's in the time domain. Animation.	10.4

subject to minor changes

Getting help

If you're stuck, see me during office hours or after class, or send your script to me as a plain-text email attachment. I can usually find the error quickly, and I check email fairly often.

Academic Integrity

From the engineering honor code:

All students taking courses in the School of Engineering agree, individually and collectively, that they will not give or receive unpermitted aid in examinations or other coursework that is to be used by the instructor as the basis of grading. Students and teachers cooperate and share responsibilities under the code. Teachers are responsible for making clear what aid is permissible and for using procedures that minimize temptations to violate the code. Students are responsible for behaving honorably, for actively ensuring that others as well as themselves uphold the code, and for being responsive to violations.

Disability

To request academic accommodations for a disability, contact Disability Resources located in the Drahnmann Center in Benson, Room 214, (408) 554-5445. You must provide documentation of a disability to Disability Resources prior to receiving accommodations.