

Santa Clara University  
COEN 45, MATLAB Programming  
Winter Quarter, 2010

**Class sections**

54119	Lecture	T/Th 11:50-13:35	ENGR 602
54121	Lab	M 14:15-17:00	Desigh Center
54123	Lab	T 14:15-17:00	Desigh Center

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 and top-down design. Programming of elementary mathematical operations. Applications to engineering problems. Co-requisite: MATH 14.

**Instructor**

- Warren C. Gibson, Ph.D., lecturer at Santa Clara since 2002. email: [warren@gibson2.com](mailto:warren@gibson2.com). Telephone: none. Office hours TBA. Class web site: [www.gibson2.com/coen45](http://www.gibson2.com/coen45)
- Lab assistants: Jingjing Ren, [renjingj@gmail.com](mailto:renjingj@gmail.com); Guichun Le, [guichun.le@gmail.com](mailto:guichun.le@gmail.com)

**Text and software**

- Required: Amos Gilot, MATLAB: An Introduction with Applications, 3rd ed., Wiley 2008. Available in paper or electronic form.
- Optional but highly recommended: MATLAB software, Student Edition

Both should be available in the bookstore.

**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.

**Quizzes**

There will be a short (five-question) quiz in class Tuesday morning first thing. These will generally follow homework assignments to check your understanding of the homework material and other class material.

## Grading

Percentages (subject to minor changes): Labs 25%, Homework 25%, Quizzes 20%, Final exam 30%. No midterm exam.

## Schedule of Topics

Week	Topic(s)	Text
Mar 31, Apr 1	Introduction to computers, programming and MATLAB. Command line usage, variables, assignments, expressions, scripts.	1.1-1.8
Apr 6, 8	Arrays, indexing, sub-arrays, extraction, concatenation, array functions, vectors, scalars, string arrays, <code>find</code>	2.1-2.9; writeup
Apr 13, 15	Matrix algebra: add, subtract, multiply, invert, transpose, concatenate. Element-by-element operations.	3.1-3.6
Apr 20, 22	Functions: inputs, input checking, outputs.	6.1-6.7
Apr 27, 29	Testing and looping: if, for, while, switch, break	7.1-7.6
May 4, 6	Testing and looping continued; 2-D plotting	5.1-5.5, 5.10-11
May 11, 13	Interpolation; 3-D plotting	8.3, 9.1-5
May 18, 20	function functions	6.9
May 25, 27	Integration of ODE's in the time domain. Animation.	10.4
Jun 1, 3	Other topics as time permits: e.g., Simulink, finite elements	
Jun 8	Final exam, 9:10-12:10	

*subject to minor changes*

## Getting help

If you're stuck, send your script to me as an 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 Drahnann Center in Benson, Room 214, (408) 554-5445. You must provide documentation of a disability to Disability Resources prior to receiving accommodations.*