

CS30 : Introduction to Computational Science and Engineering

Spring 2015 - Syllabus

Lectures: Monday, Wednesday, Friday, 10:10am-11:00am, in Winston Chung Hall, Room 142.

Lab: Wednesday, 11:10am-2:00pm, in Winston Chung Hall, Room 127.

Instructor: Tamar Shinar (shinar@cs.ucr.edu)

TA: Dennis Pleskot (dples001@ucr.edu)

Professor Office hours: Monday, 1pm-2pm (WCH, Room 419)

TA Office hours: Tuesday, 3pm-4pm (MSE, Room 349)

Please put 'CS30' in the subject line of all class-related emails.

Textbook: Programming in Matlab (by Andre Knoesen and Raj Amirtharajah) This is an online interactive book available at <https://zybooks.zyante.com>

Webpage: <http://www.cs.ucr.edu/~shinar/courses/cs30>

Synopsis

In this course, you will learn the basics of programming in Matlab, a programming language and environment widely used in science, engineering, and applied mathematics. By the end of the course, you should be familiar with Matlab variables, expressions, control flow, scripts and functions, file input/output, arrays, vectors and matrices, images and plots, as well as some of Matlab's advanced mathematical tools, such as those for solving linear systems and computing the discrete Fourier transform.

Schedule

Provisional schedule. Please see the schedule on the course webpage for up-to-date information.

Week 1 Introduction - Variables

Week 2 Scripts and Functions - 1D array basics

Week 3 1D array operations and plotting

Week 4 Strings

Week 5 2D array basics

Week 6 2D array advanced

Week 7 Images and plots - Branches

Week 8 Loops

Week 9 Custom functions - Cell arrays and structs

Week 10 Advanced tools

Assignments and grading

Please familiarize yourself with the academic integrity policy which can be found at <http://conduct.ucr.edu/learnPolicies/Pages/AcademicIntegrity.aspx>.

Grades will be determined based on the following breakdown:

20% Online reading and exercises. The chapters listed on the schedule each week are due before class the Monday of the following week. You can check the activity dashboard in Zyante to see that you have completed all the activities and exercises. Note that you may repeat exercises as many times as desired.

30% Labs. Labs completed during the lab period can be checked on the spot by the TA if time permits. You have until the beginning of lab the following Wednesday to complete the lab. The lab should be submitted by email or in person to the TA.

50% Exams. 20% midterm + 30% final