

# CSC311 MATLAB for Computational Science

## T 11:00-11:50 Library West

**Instructor:** Ryan Botts, Ph.D.  
**Office Hours:** M,T,W,Th,F 1:30-2:50

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### Course Description

MatLab will be introduced as a tool for numerical computation, visualization, and data analysis in science-related research. Various toolboxes will be explored. Students will gain experience in selecting and using the appropriate tool for the job.

### Required Materials

Textbook: Moore, Holly. *MATLAB for Engineers*, 3<sup>rd</sup> edition. ISBN: 978-0-13-210325-0  
Access to Freemat or Matlab.  
An iguana and a porcupine

### Course Goals

Students will gain the ability to use MATLAB to solve a wide range of problems using basic tools such as functions, visualization, data I/O, and some of MATLAB's built in tools.

### Examinations

There will be a lab practical for the final exam on **Tuesday April 30, 2013 10:30-12:30**.

### Labs

Learning a programming language requires hands on experience, so the primary component of your grade will be from weekly labs.

### Projects

Each student will submit a written report on the solution to an applied problem using MATLAB.

### Grading Policies

Grades will be weighted in the following manner:  
Projects(15%), Homework (65%), Final ( 20%)

Approximate minimal percentages required to obtain a given grade are:

Grading Scale in percentages	A	B	C	D
+		(87.5, 90)	(77.5, 80)	(67.5, 70)
	[92.5, 100]	[82.5, 87.5)	[72.5, 77.5)	[62.5, 67.5)
-	[90, 92.5)	[80, 82.5)	[70, 72.5)	[60, 62.5)

- **Late work.** A written assignment or computer assignment is late if it is not received at the beginning of class on the due date. Late work will not be accepted. Make-up tests (or the exam) will be given only by arrangement with the instructor for reasons of documented emergency.
- **Format for Projects.** Assignments collected must be prepared in a style suitable for grading. The projects will be graded on clarity and writing quality.
  - the organization must be easy to follow

- the work must be typed
- complete solutions must be written for problems (not just answers); solutions must be clearly marked
- use complete sentences to answer questions

### **Attendance Policy**

There is a strong correlation between grade and attendance. It is your responsibility to attend. If more than 20% of the total number of class meetings is missed for any reason you may be de-enrolled from the course as per the undergraduate catalog.

### **Academic Accommodations**

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, these students are requested to file documentation during the first two weeks of the semester with the Academic Support Center (ASC), located in the Bond Academic Center. This policy assists the University in its commitment to full compliance with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. Once the student files documentation, the ASC will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual learning needs of the student.

### **Cheating Policy**

A student who is caught cheating on an exam or an assignment will receive a zero on the assignment and may receive an "F" for the semester as per the guidelines in the course catalog. FYI- Cheating consists of using work other than your own and not citing it, storing answers on calculators for exams, obtaining copies of old exams, etc.

You may work on homework for this course in groups, however your answers must show enough variation from the work of others to indicate that it was not merely copied.

<b>Week/ Date</b>	<b>Lab</b>
1/8/2013	No meeting
1/15/2013	Lab 1: The Basics, Read Ch. 1
1/22/2013	Lab 2: .m files, functions and paths, Read Ch. 2
1/29/2013	Lab 3: More of the basics
2/5/2013	Lab 4: Built in functions, Read Ch. 3
2/12/2013	Lab 5: User defined functions, Read Ch. 6
2/19/2013	Lab 6: Matrices, arrays and operations, Read Ch. 4
2/26/2013	Lab 6: Plots and visualization, Read Ch. 5
3/12/2013	Lab 7: More advanced visualization, Ch. 14
3/19/2013	Lab 8: Applications
3/26/2013	Lab 9: Symbolic mathematics, Ch. 12
4/2/2013	Lab 10: Toolkits: regression
4/9/2012	Lab 11: Toolkits: Fourier transform
4/16/2013	Project
4/23/2013	Project
4/30/2013	Final Exam 10:30-12:30