

SYLLABUS FOR CSCI 225
Matlab and Labview

Randolph College, Summer

PROFESSOR:

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LECTURE LOCATION AND TIME:

Moodle! Online. Our class will be asynchronous. This means that there will be videos for you to watch and interact with that can be watched on your own time.

OFFICE HOURS: TBA

READING MATERIALS:

- MATLAB Programming for Engineers, 5th Edition

Stephen J. Chapman

ISBN-13: 978-1-111-57671-4

- Labview of Everyone

Travis and Kring

ISBN-13: 978-0131856721

Cengage MindTap

<http://services.cengagebrain.com/course/site.html?id=3649325>

Required software:

As should be evident in the title of this class, we will be using MATLAB extensively in this class. MATLAB is available on all of the computers in the school computer labs. If you cannot come to campus, need to buy the student version for \$49 (basic version) or \$99 (includes several add-on products). See the Moodle page for links and more info on purchasing. Labview is also something that you must buy. You can buy the student version of for this class.

OVERVIEW:

The purpose of this class is for you to gain a working knowledge of two very different programming languages commonly used in STEM fields. MATLAB and Labview are programming languages commonly used for linear algebra, data analysis, plotting, and image processing. Some level of computer programming is required for most engineers and scientists. Independent of the language, programming teaches you to be logical and solve problems.

Class Components

Reading: Programming is much easier to learn by doing than by reading about it, but it will be easier for you to follow along the video tutorials if you have at least skimmed some of the reading before that topic discussed.

Lecture: Class is most like a lab. It will be self driven and will consist of video tutorials.

Programming: A big part of class will be programming activities. The only way to learn how to program is to practice programming.

Quizzes: We will have programming quizzes after every chapter. You will not be expected to write exact lines of code, though you

may have to write some pseudo-code or sketch out how you would program a solution to a specific problem. I will primarily be testing the vocabulary and your understanding of how programs work so that you are familiar with the language and terms used by other programmers.

Assignments: The only way to learn how to program is to practice programming.

There will be two homework assignments per week due on Wednesdays and Saturdays by midnight. The assignments are available on MindTap and your work should be uploaded to the appropriate Dropbox on MindTap.

Topics Covered (Not necessarily in order)
Intro to programming
Intro to MATLAB
Intro to LabVIEW
Conditionals in MATLAB and LabVIEW
Iterations in MATLAB
Graphics in MATLAB
Iterations in LabVIEW
Developing Algorithms, Modular Programming, and Debugging
User-Defined Functions in MATLAB

Sub-VI's in LabVIEW
Discrete vs. Continuous and Data Types
Plotting in LabVIEW
Probabilities and Averages
Simulations and Random Walks
Vectors and Matrices
Characters and Strings
Input and Output

Course Policies

Grading: Your grade will be determined as follows:

40% quizzes 60% Assignments.

Here is the grading scale we will use:

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	< 59

Disability Statement: If you have a disability, an illness, or injury that keeps you from learning to the best of your ability, there are services available that may be helpful. To learn more about these services, go to the “Just for Students” link on your Moodle Classroom Help menu or contact Tina Barnes, Coordinator of Disability Services, in the Academic Services Center, 4th floor, Lipscomb Library; at (434) 947-8132; or at tbarnes@randolphcollege.edu.

Students with a disability requiring special

consideration: Students with disabilities needing accommodations in summer online classes at Randolph College may send any requests for accommodations and accompanying documentation to accessibility@randolphcollege.edu.

Students enrolled at other colleges or universities may submit current letters of accommodation from their home school. Students who are not currently receiving accommodations and would like to inquire about receiving them in summer online classes at Randolph College can send any pertinent documentation or inquiries to the Coordinator of Disability Services at the email address listed above.