

# Introduction to MATLAB

## CSC 191B

### Course Syllabus

Spring 2020

**Instructor:** Dr. Grey Ballard

**Email:** ballard@wfu.edu

**Office:** Manchester 234

**Office Hours:** Tues 1-3pm and Friday 2-4pm, or by drop-in or appointment

**Class:** 10–10:50 Wed, Manchester 017

**Required Text:** *Introduction to MATLAB* (zyBooks 2017)

**Optional Texts:**

- *Insight through Computing: A MATLAB Introduction to Computational Science and Engineering* by Van Loan and Fan (SIAM 2010)
- *Numerical Computing with MATLAB* by Moler (SIAM 2004), available online: <http://www.mathworks.com/moler/chapters.html>
- *Experiments with MATLAB* by Moler (2011), available online: <https://www.mathworks.com/moler/exm/chapters.html>

**Course Schedule:** <http://users.wfu.edu/ballard/teaching/CSC191B/>

## 1 Course Description

Introduction to the basic concepts of programming and problem solving in MATLAB. Students should gain the skills to write moderately complex MATLAB programs to solve mathematical, scientific, and/or engineering problems.

## 2 Learning Outcomes

By the end of this course, students should be able to:

1. write MATLAB code using functions and scripts;
2. navigate internal and external (Internet-based) documentation of MATLAB's built-in functions;

3. visualize MATLAB data in 1, 2, and 3 dimensions;
4. use MATLAB to solve a real-world problem

### 3 Reading, Labs, and Projects

The required textbook for this class is available online. To access the text:

1. Sign in or create an account at [learn.zybooks.com](https://learn.zybooks.com)
2. Enter zyBook code `WFUCSC191BallardSpring2020`
3. Subscribe

A subscription is \$77 and will last through May 2020.

Weekly reading assignments in the zyBook will be posted on the course schedule. Note that some sections are marked “Optional”. The participation and challenge activities for optional sections will *not* be included in the assessment (see below), but I may recommend reading specific optional sections. We will also use alternative online resources, which will be posted on the course schedule.

There will be several labs, assigned roughly weekly. Labs can be completed collaboratively, but all code must be written by each individual. This means you can discuss them with classmates, but you may not share code. Include the names of those with whom you’ve worked on each completed problem set.

There will be a final project, which will be due on the last class period and will include a short presentation to the class. The project will include MATLAB code, a written report, and presentation materials. The goal of the project is to use MATLAB to explore or solve some problem of the student’s interest (for example, arising from an outside major, a research project, or an extracurricular activity). It should extend beyond what is covered by the labs and will likely require using extra resources, including reading optional sections from the zyBook.

### 4 Assessment

Course grades are determined using the following weighting:

- 10%: In-Class Participation
- 10%: zyBook Participation/Challenge Activities (95% completion goal)
- 50%: Labs
- 30%: Project

Letter grades are assigned based on the following categorization:

|                      |             |                      |          |
|----------------------|-------------|----------------------|----------|
| <b>A</b>             | 93 or above | <b>C</b>             | 73–76.99 |
| <b>A<sup>-</sup></b> | 90–92.99    | <b>C<sup>-</sup></b> | 70–72.99 |
| <b>B<sup>+</sup></b> | 87–89.99    | <b>D<sup>+</sup></b> | 67–69.99 |
| <b>B</b>             | 83–86.99    | <b>D</b>             | 63–66.99 |
| <b>B<sup>-</sup></b> | 80–82.99    | <b>D<sup>-</sup></b> | 60–62.99 |
| <b>C<sup>+</sup></b> | 77–79.99    | <b>F</b>             | below 60 |

## 5 Contacting Me

In general, email is the best way to reach me, and I'm happy to take questions over email. The easiest way to find me in person is to stop by my office during office hours, though please feel free to drop by any time. If you want to be sure to find me then you can also email ahead to schedule a time. Please contact me as soon as possible if you know you will miss class due to a university-sponsored activity, such as athletics.

## 6 Academic Integrity

Labs may be discussed with other students, however the work submitted must be your own work and reflect your understanding of the material. Copying of code/work from other students or from Internet-based resources is not acceptable and will be dealt with through the Honor System.

## 7 Learning Assistance Center

If you have a disability that may require an accommodation for taking this course, then please contact the Learning Assistance Center (758-5929) within the first two weeks of the semester and bring it to my attention as appropriate.

## 8 Supporting Fellow Students in Distress

As members of the Wake Forest community, we have a personal responsibility to ensure that this classroom and the campus as a whole remains a healthy and safe environment for learning. Occasionally, you may come across a fellow classmate whose personal behavior concerns or worries you, either for the classmate's wellbeing or yours. If this should occur, you are encouraged to send your concern to the Wake Forest CARE Team at <http://careteam.wfu.edu/how-to-make-a-report/>. By utilizing your insights and observations, we can work together to help individuals get connected to appropriate resources and keep our community safe.

## 9 Emergency Preparedness Policy

In the unlikely event of a major disruption of normal university activities (such as might result from a health emergency or other disaster), a course continuation contingency plan will be enacted in order to allow completion of the course. During this time, students should continue with the reading and other assignments listed on the syllabus and monitor email, Sakai, and the WFU website for information. If students have questions or are in doubt about how to proceed, they should contact the instructor by email if available, otherwise they should contact by phone.