***2017 CVL MATLAB® Programming Bootcamp***

**Contact Information**

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**Overview and Expectations**

Computer programming skills are becoming an essential tool to conduct, and aid reproducibility of, research in psychology and neuroscience. The purpose of this 7-week bootcamp is to introduce computer programming, focusing on data organization and analysis, using the MATLAB programming environment. This bootcamp will comprise a mixture of lectures and “hands-on” programming, and will individual work between sessions.

This bootcamp does NOT help in any way with course credits (specific to graduate students), and it is not required to take/attend this. That being said, my expectation is that those interested in learning how to program in MATLAB will attend and participate in the weekly sessions and complete any practice work (if necessary) between sessions. The best way to learn how to program is to spend time programming, and any “assignments” (which are not graded, but I will provide feedback) will be aimed at practicing how to program.

**Learning Objectives/Outcomes (and how to achieve them)**

After completion of this bootcamp, you will hopefully have a solid foundation of the following concepts: variables, data structures, selection/loop statements, vectorization, object oriented programming (OOP), writing user-defined functions, basic statistical/plotting operations, and optimization functions (time and interest permitting). Although we will be using MATLAB, these concepts are common in many other programming languages used in our fields, such as R and Python. In addition, you will gain experience with using GitHub to keep track of changes in your code as well as share your code with others.

As stated above, the best way to learn is practice, practice, and more practice. There will be assignments to be completed outside of the weekly meeting times. The purpose of these are to provide more practice, and to help cover additional material that I will simply not have enough time to cover during the weekly meetings. These assignments will need to be uploaded to the GitHub page for this bootcamp (don’t worry, it will be a private repository, so no one will see them).

**Necessary Course Materials**

1. Laptop with Matlab 2016a or newer (operating systems can be Windows, Mac Os X, or Linux)
2. A [www.github.com](http://www.github.com) account (these are free, and becoming increasingly necessary in our field)

**Suggested Course Materials**

1. Attaway, S. (2017). MATLAB: A practical introduction to programming and problem solving (4th edition).
   * This is the primary book the bootcamp is based on. Chapters from this book will be referenced for further reading.

**Course Timeline**