The Missing Semester of Your CS Education

Spring 2021: Tuesdays, 11:30 am – 12:20 pm

WH Lab 221

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**Course Description**: Inspired by the MIT course of the same name, The Missing Semester of Your CS Education Toolbox aims to cover the vital aspects of a developer’s workflow that are often overlooked in a typical CS education. A variety of topics will be explored, providing a basic overview of a variety of tools and processes which, while vital to many developers, are not typically taught in the classroom of a CS curriculum.

**Materials**: All materials, including this document, are available on the Github repository: <https://github.com/Hijerboa/The-Missing-Semester-CSUOhio>

This is not an introduction to the basics of programming and computer science logic. As such, the content will be taught with the assumption that students understand the basics of programming.

These lectures will be conducted primarily in Python, however the topics covered can be largely utilized alongside any programming language. While a basic understanding of the Python programming language is recommended, it is not required.

**Computer Usage**: All command line material is written for a Unix environment, specifically a Bash environment. For students using Windows, it is encouraged to install Windows Subsystem for Linux (WSL), using Ubuntu 20.04. For students using a Mac, most of the content will work without issue on Mac OS’s terminal, but it is recommended to use a Linux VM.

<https://docs.microsoft.com/en-us/windows/wsl/install-win10>

**Tentative Schedule**:

1-18: Introductory class, setting up your development environment

1-25: Unix command line usage

2-1: Introduction to Version Control: Git

2-8: API Usage (Introduction to HTTP, Postman Usage)

2-15: API Development

2-22: Introduction to Containerization and Virtualization (Containerizing your API)

3-1: Introduction to Info Assurance and Security: OWASP Top Ten

3-8: Introduction to Info Assurance and Security: SQL Injection

3-15: Introduction to Info Assurance and Security: Cross Site Scripting

3-22: Guest Speaker (Tentative)

3-29: UI/UX Development (Emily Zhao)

4-5: DevOps workflows (CI/CD)

4-12: Introduction to automation (Python scripting, bash scripting, low code solutions)

4-19: Application Architecture Design

4-26: Misc. Topics

5-3: Q&A

Recommended Software:

* WSL <https://docs.microsoft.com/en-us/windows/wsl/install>
* Github Desktop
* Python (recommended installed in WSL if on Windows)
* Docker Desktop
* Postman
* VS Code