



Electrical Engineering and Computer Science Department

CIS 197 - The Missing Semester of Your Computer Science Education
Fall 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 Computer Science (CS) Education 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.

Textbook: None required

Book Resources: Throughout this course, a large variety of books will be recommended on several topics. None of these are required to complete the course, however it is recommended students read these books.

Course Materials: All course materials, including this syllabus, are available on the class's GitHub repository: <https://github.com/CSU-Hacks/The-Missing-Semester-CSUOhio>

Expected Outcomes:

Students will be able to:

- Identify the key components of a developer's workflow.
- Utilize basic version control system functions.
- Explain the basics of containerization and application security
- Utilize a command line environment.
- Implement basic DevOps practices
- Automate everyday tasks using APIs
- Apply principles of program architecture to solve real-world problems

Suggested Prerequisites: CIS 151: Invitation to Computing and CIS 260: Introduction to Programming. While these courses are not a strict requirement to take this class, it 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.

This course will be taught 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 Linux.

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

Tentative Schedule:

- 8-24: Introductory class, setting up your development environment
- 8-31: Unix command line usage
- 9-7: Introduction to Version Control: Git
- 9-14: Virtualization and Containerization
- 9-21: Guest Speaker: Cory Blankenship (Sherwin Williams)
- 9-28: UI/UX Development (Emily Zhao)
- 10-5: Guest Speaker: (TBD)
- 10-12: Introduction to Info Assurance and Security: OWASP Top Ten
- 10-19: Introduction to Info Assurance and Security: SQL Injection
- 10-26: Introduction to Info Assurance and Security: Cross Site Scripting
- 11-2: DevOps workflows (CI/CD)
- 11-9: Introduction to API usage and development
- 11-16: Introduction to automation (Python scripting, bash scripting, low code solutions)
- 11-23: The Design Process and Architecture of Programming
- 11-30: Potpourri and Q&A

Academic Honesty: Students are expected to do their own work. Academic misconduct, student misconduct, cheating and plagiarism will not be tolerated. Violations will be subject to disciplinary action as specified in the CSU Academic Misconduct Policy. Please refer to

<https://engineering.csuohio.edu/advising/academic-misconduct>

ADA Adherence: If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. My office location and hours are listed on top of this syllabus. If you need further information, please contact the Office of Disability Services (Main Classroom 147), phone number 216.687.2015, on the web at

<http://www.csuohio.edu/offices/disability>

This course is adapted from the MIT course The Missing Semester of Your CS Education:

<https://missing.csail.mit.edu/>