

Welcome to UMSI 211: Coding Without Coding

Course Introduction

What is UMSI 211?

- Intro to programming
- Hands-on labs
- No prior experience required

A Bold Hypothesis

It is now possible to become a competent programmer without first becoming fluent in a programming language.

- An AI assistant can express your ideas in code.
- You still need to understand the underlying concepts and logic of programming.
- But you don't need to learn the syntax of particular languages.

But Why Learn to Program At All?

- The high-level skills of programming are useful in general problem-solving.
- You can create useful and fun programs!
 - data collection and analysis
 - automation of repetitive tasks
 - interactive visualizations
 - games
 - study tools
 - simulations

Learning Goals for the Course

- Understand the fundamentals of programming logic and concepts.
- Use an AI assistant to understand, generate, and debug code.
- Be able to create programs that are useful to you.

Approach

- Decompose computations into small, modular parts that can be reused.
 - Have planning discussions with your AI assistant where you consider multiple options for how to implement things.
- Write automated tests as a way to carefully express your intentions.
- Use the assistant to generate and debug code.
 - ask the assistant to explain what the code does
 - look at the actual code only to monitor which parts the assistant is changing (sometimes that provides a clue that it is doing the wrong thing).

Course Logistics

- Lecture/lab mix every session.
- Outside of class:
 - Finish lab exercises
 - Five problem sets
 - Some readings or videos
 - Expect to spend 6-9 hours/week
- Echo checks in class
 - short, written responses to questions about what you turned in for your problem set.
 - if responses suggest you just fed the entire assignment to an AI rather than engaging with the material, you will be asked to redo the assignment.
- Final project: build something *you* want to build! Be bold and ambitious.

Grading

- Problem sets-- 500 points (50%)
- Class participation-- 200 points (20%)
- Final project-- 300 points (30%)
 - includes 15-minute oral interview during reading period

Improvisation

- I will be adjusting the course content and process as we go.
 - Be flexible. Some things may change based on what is working or not working.
- I especially want to know when you're getting stuck, so I can figure out what it is students need to know for this new approach to programming.