

Intro to Computer Programming

Course Description

Course will be conducted in-person in the Arsht Hall Computer Lab, with students working individually from material introduced in the class lecture. Student need only to use a text editor to create small programs and then the web browser to run them. The basis of the material is modified from a book (Introduction to Programming for the Independent Student: A Self-Starter's Course on the Principles and Practice of Bending Computers to Your Will) by Chris Monson. Chris wrote the book a few years ago based on teaching young adults. (It is freely available at bouncingchairs.net but is probably a bit too intimidating to reference in the first few classes.) The course will start with the basics of software executing on a computer and then progress through key concepts like variables, functions, loops and problem-solving/debugging.

Weekly Layout:

The different types of software that run on computers (BIOS, operating system, device drivers, the file system, executable programs/applications, ...) and overview of JavaScript

Overview of basic math/algebra and writing/calling functions

More in-depth coverage of functions, including passing and returning information to functions, with an overview of "computer bugs" and how to do debugging

Software "objects" as containers for data, and the standard "objects" such as Math, String, etc.

Overview of an HTML "document" and HTML's object model

Introduction to simple boolean logic and the if/then/else paradigm

Working through different problems and exercises to make sure that there is basic understanding of the concepts

Review of recursion and iteration with the introduction of lists/arrays, looping and switches

Creation of a very simple animation program

More on animation and enhancing the program from Week 9

Buttons, clicks and event listeners

Multi-file programs

Working through different problems and exercises to make sure that there is understanding of the concepts and how to keep learning