

HH/PSYC 6273 3.0 A

Computer programming for experimental psychology Fall 2025

Instructor: Richard Murray rfm@yorku.ca

Lectures: Fridays, 11:30 - 2:20
BSB 159 (Hebb lab)

Textbook: Creating perceptual and behavioral experiments with Python
- this is a work in progress by the instructor
- PDF chapters will be distributed weekly

GitHub: github.com/rfmurray/psyc6273

Evaluation: six tests (10%), two problem sets (40%), term project (50%)

Overview. This graduate course covers computer programming methods that are useful for running experiments and analyzing data in experimental psychology. Students will learn Python, a popular, general-purpose programming language. Topics include basic programming methods and data structures, data files, curve fitting, device calibration, data visualization, statistical tests, model simulations, and interfacing to external devices.

LECTURE SCHEDULE

	topic	readings	tests, etc.
5-Sep	data structures	chapters 1, 2	
12-Sep	loops and conditionals	chapter 3	
19-Sep	psychopy	chapter 4	test 1
26-Sep	psychopy		project proposal
3-Oct	strings and files	chapters 5, 6	test 2
10-Oct	numpy		test 3
17-Oct	<i>fall reading week; no class</i>		
24-Oct	plots		problem set 1
31-Oct	functions and model fitting		test 4
7-Nov	gamma correction		
14-Nov	pandas		test 5
21-Nov	examples and applications		
28-Nov	review		test 6
			problem set 2

The term project is due on Friday, December 5.

Guidelines on plagiarism. An important part of learning how to program is discussing problems with other people, and reading other peoples' code. This makes it important to think about what constitutes plagiarism. Here are some guidelines. You can discuss assigned problems with others as much as you want, and read each others' code, but in the end you must do your own work. If you cut and paste someone else's code, you are plagiarizing. If you find yourself looking at someone else's code while writing your own, you are probably plagiarizing. If you memorize someone else's code and type it in without understanding how it works, you are plagiarizing. You should think of computer programming as problem solving, and it is important that you provide your own solutions to assigned problems. That said, discussions are an important part of solving difficult problems, and it is inevitable and acceptable that different peoples' solutions will end up being similar in some ways.

Guidelines on use of AI. Large language models (LLMs) such as ChatGPT are rapidly and dramatically changing the nature of computer programming. These tools are very good at generating code in many programming languages, to solve many kinds of problems. At present, however, it is still important for users to know how to program, in order to evaluate and revise outputs from LLMs. Part of the evaluation for this course is based on in-class tests, where LLMs will not be available, so that you will learn how to program independently. Most of the evaluation, however, is based on problem sets and a term project, which you will complete outside class time. You are free to use LLMs in any way you would like for these parts of the course. If you do, I just ask that when you submit your work, you give a brief description of how you used LLMs. Even if the problem was completely solved by an LLM in one step, that is perfectly fine, and will not affect your mark; I would just like to learn more about how useful these tools are for the kind of programming tasks covered in this course.