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Course Syllabus

Welcome to CSCA20: Introduction to Programming

How will this course operate?

We want to offer you lots of opportunities to learn in whatever ways work best for you. With this in mind, we have split the course into a small number of mandatory components, and many optional components.

Mandatory

Lectures: We will be presenting material and building code together during lecture. You can watch the web-option after the fact, but you will get a better experience by participating live. In any case, you are responsible for any material presented during lecture.

Tutorials: This is where you will work with TAs to demonstrate your knowledge. Labs and quizzes will be completed in tutorial section, so attendance is mandatory. If you can't make your assigned tutorial section on a given week, you will need to get in touch with a member of the teaching team to arrange an alternative opportunity.

Tests: We will have 2 term tests and an exam. Dates and specific details will be provided closer to the dates of the tests.

Optional

Readings/Videos/Links: We don't have an official course textbook. This does not mean that the links we post to readings won't be helpful, but rather that you can decide which works best for you. Most students will need at least some external guidance, but videos will work better for some, interactive problems for others, formal readings for still other students, try them all and see which one(s) suit your learning style.

Practice Problems: We won't be marking these formally, but they are good practice and good opportunity for you to evaluate how much you're getting from the lectures/readings/videos. The TAs will be more than happy to work through them with you if you need help.

What will we be covering?

In this course, we will cover fundamental programming concepts in Python, including:

- fundamental programming structures (selection, loops, functions)
- core data structures (variables, lists, strings, dictionaries)
- user and data interaction (user I/O, files, SQL)
- programming style and technique (testing, documentation)
- 3rd party tools(matplotlib, numpy)

How will you be evaluated:

This course doesn't use a traditional "bucket of points" model where each piece of work has some weight, and your final grade is how many points you've accumulated. Instead, we will be using skills based evaluation, where you will be rewarded based the skills you've mastered.

You will be evaluated on the following sets of skills:

- User I/O
- User I/O (Advanced)
- Documentation (Internal)
- Documentation (External)
- Testing
- Debugging
- Selection
- Loops
- Loops + Selection
- Functions
- Strings/Lists
- Strings/Lists (Advanced)
- File I/O
- CSV files
- Dictionaries
- Dictionaries (Advanced)
- SQL
- 3rd Party Tools

Each skill has 3 levels of demonstration

- Attempted You have demonstrated effort towards implementing this skill
- Practiced You have demonstrated your ability to implement this skill
- Modified You have demonstrated your ability to understand and manipulate existing work
- Mastered You have demonstrated your mastery of this skill in a controlled environment

Once you have demonstrated a skill at a given level, it stays demonstrated. So you don't need to worry about re-demonstrating. We will attempt to give you as many opportunities as possible to demonstrate skills at any given level.

So how does this translate to grades?

There are 18 skills in this course. For each skills you get the following:

- 1% for attempted (show up to tutorial and work hard)
- 1% for practiced (demonstrate reasonably working code by the end of the tutorial)
- 1% modified (complete a quiz at the start of a tutorial)
- 2% mastered (demonstrate your skill in a test or exam)

What about the last 10%?

If you've done the math at this point, you know that 18 skills * 5% per skill = 90%. The final 10% of the course will be based on an end of term project where you get to implement all of the skills you've learned and show off the cool stuff you can now make.