Blaheta

Syllabus TL;DR CMSC 140: Introduction to programming

Spring 2020

Section 1:	MWF 10am, Ruffner G54
Section 2:	MWF 1pm, Ruffner 352
Website:	http://cs.longwood.edu/courses/cmsc140
Professor:	Don Blaheta
Office:	Ruffner 334
Phone:	x2191
Email:	blahetadp@blahedo.org or blahetadp@longwood.edu
Office hours:	Tuesdays 1:30–3, Wednesdays 2–3:30, Fridays 11–12

Overview

In the last decade, we have seen huge increases in the computational thinking required in a wide variety of disciplines; across the natural and social sciences, the arts, and even in the humanities, researchers and practitioners are finding that they have data, they need to process it, and no completely off-the-shelf solution will do. They need to write a program to solve a problem.

In this course, we will introduce the concepts and ways of thinking required to write straightforward programs to process a variety of kinds of data.

Textbook and resources

The textbook is Automate the boring stuff with Python, 2e, by Al Sweigart (ISBN 978-1-59327-992-9). There will be regular in-class and out-of-class assignments drawn from the book; you should bring it to every class. It is available online for free at http://automatetheboringstuff.com and if you use that version you can "bring it to class" by having a suitable internet-connected device.

The language of the course is Python 3, and you'll need to install it on your laptop, along with the Mu editor. You will frequently be expected to bring your laptop, with Python and Mu already installed on it, with you to class. Python can be downloaded and installed from https://www.python.org/downloads/, and Mu can be downloaded and installed from https://codewith.mu/.

Syllabus TL;DR

Content

- **Preparation and participation.** You need to be an active participant in this class: present, prepared, and on-task. 10% of the grade is for being all of those things, and being able to communicate that to me.
- Lab work (and homework). The central goal of the course is that you learn to Collaborative program, so the bulk of the work you do will be "lab" work before, during, and after our assigned class periods. This work will make up 25% of the grade.
- **Course project.** Your course project will involve working with a data set in your Collaborative area, building a program to process that data, and writing up your results. Evaluation will be based on the program code itself as well as your written and verbal proposals and conclusions based on the results; all that together will be worth a total of 25% of the final grade.
- Exams. There will be two exams, one in late September and one during the finals Non-collaborative period. The final will not be explicitly cumulative, though of course the material from the second half of the course builds on the earlier stuff. You are not permitted to discuss the exams at all, with anyone other than me. Each exam is worth 20% of the grade (total of 40%).

Grading scale

I tend to grade hard on individual assignments, but compensate for this in the final grades. The grading scale will be approximately as follows:

A–	[85, 90)	Α	[90, 95)	A+	[95, 100]
B–	[70, 75)	В	[75, 80)	B+	[80, 85)
C–	[55, 60)	\mathbf{C}	[60, 65)	C+	[65, 70)
D–	[40, 45)	D	[45, 50)	D+	[50, 55)

While there will be no "curve" in the statistical sense, I may slightly adjust the scale at the end of the term if it turns out some of the assignments were too difficult. Final grades of A+ are recorded as an A in the grading system. Final grades below the minimum for D- are recorded as an F.

Final exam

The final exams are scheduled at the following days and times:

Mon, 4 Dec 3–5:30pm Sec. 2 (the MWF1pm section) Tue, 5 Dec 3–5:30pm Sec. 1 (the MWF10am section)

If you wish to take the final during the other section's time slot, contact me in advance; I will allow it on a first-come first-serve basis (but seats may be limited).

Calendar

Days marked –L mean you should bring your laptop that day, as we will be doing lab work.

Wk	М	W	F
-	January		4 - T
1		15	17-L
		—	pp3–13
		Introduction	Hello world
		The idea of an algorithm	
		How to read a textbook	
2	[MIK Day]	22*	24
		pp13–20	—
		Parts of a program	Arithmetic and operations
		Comments	
		Input / output	
3	27	29-L	31
	pp21-28		pp28-35
	if and blocks	(continued)	else, elif
	Comparisons and booleans		Flowcharts
	and or not		
	February		
4	3 –L	5	7 –L
		pp35–43	pp51-55
	(continued)	while loops	(continued)
		break, continue	
5	10	12-L	14
	pp44-51		pp77-85
	for loops	more loop practice	Lists
	range		List operations
6	17	19-L	21 **
	pp85–88		pp88-93
	Multiple assignment	Standard list-loop	Adding and removing items
	Random choice	algorithms	Other list operations
	Looping over lists	Test cases	*
7	24-L	26	28
	Loops with adding and removing	More list-loop practice	 Midterm exam

* 22 January: Deadline to add/drop classes (5pm)

**** 21 February**: Deadline to elect pass/fail option (5pm)

Spring 2020

Wk	Μ	W	F
	March		
		SPRING BREAK	
8	9 pp57–63 Function basics	11 pp65–68 Scope More function practice	13 pp201–207, 215–219 Files and paths Reading and writing
9	16 – L — Working with functions and files	18 pp371–382 CSV files Project overview	20 — CSV files, continued Project proposal due
10	23 pp129–138 More string operations	25 pp138–140 Joining and splitting strings	27 pp140–153 Strings continued
11	30 * — Speech practice Project work day	April 1 Elevator speeches	3 pp267–279 Getting web files Bare basics of HTML
12	6	8	10-L
	pp279–291 Web scraping	pp111–128 Dictionaries	Practice with dicts
13	13 pp447–458 Image manipulation	15 pp459–472 Pixel-level control Shapes and text	17–L — Practice with images
14	20 — Project work day	Research day no class	24 — Lightning talks
15	27 pp358-367 Manipulating .docx files	29 — Elevator speeches Project writeup due	May
	Final exam, Sec	ction 2 (1pm section): Mon	4th, 3–5:30pm

Final exam, Section 1 (10am section): Tue 5th, 3–5:30pm

* **31 March**: Deadline to withdraw from a class (5pm)