CMPSCI 119
Fall 2018
Introduction to Programming with Python

Professor William T. Verts

Class:
Lectures: Monday, Wednesday, Friday 1:25PM–2:15PM, Goessmann 20. I must miss class on Monday, December 10 due to an all-day faculty meeting. I may have a TA run the class that day.

Office Hours and Email:
LGRC A357, Office Hours M/W/F 2:45-3:45, and by appointment, but hours on December 10 are cancelled.
verts@cs.umass.edu   Personal, for asking questions.   Put CMPSCI 119 in the subject line.
literacy@cs.umass.edu   For submitting on-line materials.
I read all email daily, but do not expect a speedy reply. I might not reply at all if the question is something I can address in class. Do NOT email attachments to me; they will be deleted. Do not call me at home.

TA:
The TAs will hold office hours in LGRT 222, perform the grading, and be available to assist in all aspects of this course. Hours to be arranged. TA office is shared by all TAs and graders for all my courses.

Books: REQUIRED: *Computer Science Companion*, REVISED 3RD Edition, 2017 Printing, ISBN 9781524943998, ~$28, by me. (It is OK if you have the unrevised 3RD edition, but the revised version has new information, errors have been corrected, and it is now in color.) The *Computer Science Companion* is a required text for COMPSCI 105, 119, 120, and 145.

OPTIONAL: *Introduction to Computing and Programming in Python – A Multimedia Approach*, 4TH Edition
Mark Guzdial & Barbara Ericson, 2015, ISBN 9780134025544, $97, Pearson (Prentice Hall).

Web: http://people.cs.umass.edu/~verts   (then follow the link to the 119 page), or:
http://people.cs.umass.edu/~verts/cmpsci119/cmpsci119.html
http://people.cs.umass.edu/~verts/cmpsci119/quizzes/quizzes.html

Social Media:
Please do not "friend" me on Facebook, Linked-In, or other social networks. I reserve Facebook for relatives, hiking buddies, and friends from high-school. I do not often post messages on Twitter.

Course Scoring (percentages may change according to number and type of assignment):

Midterm 1	15%	early October, in-class. Open book, open notes.
Midterm 2	15%	early-mid November, in-class. Open book, open notes.
Final Exam	20%	Thursday, December 20, 1:00pm, Hasbrouck 20. Open book, open notes.
Homework	10%	Throughout semester (assigned homework, in-class exercises, on-line homework, etc.)
Projects:	40%	Throughout semester. Late penalties will apply as appropriate.

Letter grades will be assigned according to final computed course score:
A ≥ 90%, A- ≥ 88%, B+ ≥ 86%, B ≥ 80%, B- ≥ 78%, C+ ≥ 76%, C ≥ 64%, C- ≥ 62%, D+ ≥ 60%, D ≥ 50%, F < 50%.
Missing either of the midterms, or the final exam, incurs an automatic F for the course. Fractional final course scores are rounded to the nearest integer. For example, 87.49999 rounds down to 87 (B+), while 87.50000 rounds up to 88 (A-).

Python on Your Computer: You may use either a Windows PC or an Apple Macintosh. The programming environment we use is JES 5.0 (Jython Environment for Students). There are versions that run on both PCs and Macs, however Macs have problems which require a special solution.

Windows: Go to **https://github.com/gatech-csl/jes/releases** and download the large file named **jes-5.020-windows.exe** and run it.

Mac: Go to **http://coweb.cc.gatech.edu/mediaComp-teach/63** and download the specialized version of JES 5.02, then follow the instructions on the Web page to install the program.

In addition, "standard" versions of Python may be downloaded from http://www.python.org/, and Mac users have an older version of Python already installed, accessible from the Terminal application.

Server-Side Python:

We will also run Python programs on a UNIX server. Accessing the server requires a UNIX account (which I will give you) along with special (free) software, listed below.

Windows (1): Go to **https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html**, look in the Alternative binary files section, and download **putty.exe** (64-bit) to your desktop. There is no installation process.

Windows (2): Go to **https://winscp.net/eng/download.php** and download, then install, the latest version of WinSCP.

Mac: Go to **https://sourceforge.net/projects/fugussh/files/**, scroll down to where you see the section labeled Mac OS X Lion Support, then download and install **Fugu 1.2.1pre1** on your computer. Do NOT install any of the earlier versions.

Other Software:

From time-to-time I will demonstrate software that runs only on a Windows PC; Mac users may wish to install Parallels and Windows 7, or Crossover Mac, in order to run these programs.

Course Outline:

Normally I would give you an outline of the course with a day-by-day schedule of the lectures. This course is undergoing a major revision this semester, so here is a general sense of the topics at this time, in rough order:

1. Data types and variables (`int`, `long`, `float`, `bool`, `complex`),
2. Flowcharts and program structure,
3. Simple sequential Python programs, assignment, `input`, `raw_input`, and the `print` statements,
4. The `if` (`if`, `if-else`, `if-elif-else`) and `while` statements, and how they differ, and indentation,
5. Functions, predefined and user-defined (the `def` and `return` statements), parameter passing,
6. Advanced data types (lists, tuples, strings, dictionaries), string and list slicing,
7. Python from the command line (both JES and UNIX),
8. Graphics and designing visually (canvases and pixels), animations,
9. Image processing (color replacement, filtering, dithering, rotations, etc.)
10. Intermediate statements (`pass`, `break`, `continue`, nested functions, global variables, etc.),
11. Debugging, debugging, debugging,
12. Advanced topics (recursion, object-oriented Python), if there is time.

Final Notes:
1. **DO YOUR OWN WORK, INCLUDING HOMEWORK AND LAB WORK.** You may discuss homework and lab assignments with other students, but you may not share files or disks. Upon discovery of duplication, I will contact you for a conference, as required in the guidelines set out by the University of Massachusetts Academic Honesty Policy, and we will resolve the issue according to those guidelines. See the document at:
http://www.umass.edu/dean_students/academic_policy/

2. **Do not** ask for extra work after the end of the semester to boost an undesirable grade. I never grant such requests.

3. Please contact me directly if you have any concerns about the running of the course, the TAs, grading, etc.