

**CMPSCI 119**  
**Fall 2016**  
***Introduction to Programming with Python***  
***Professor William T. Verts***

**Class:**

Lectures: Monday, Wednesday, Friday 1:25PM–2:15PM, ILC S240.

**Office Hours and Email:**

LGRC A357, Office Hours to be arranged. Appointments at our mutual convenience.

verts@cs.umass.edu                      Personal, for asking questions.                      Put CMPSCI 119 in the subject line.

literacy@cs.umass.edu                      For submitting on-line materials.                      Put CMPSCI 119 in the subject line.

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*, 3<sup>RD</sup> Edition, 2016 Printing, ISBN 978-1-5249-0236-0, ~\$24, by me,

**OPTIONAL:** *Introduction to Computing and Programming in Python – A Multimedia Approach*, 4<sup>TH</sup> Edition  
Mark Guzdial & Barbara Ericson, 2015, ISBN 978-0-1340-2554-4, \$97, Pearson (Prentice Hall).

**Web:**

<http://people.cs.umass.edu/~verts>

<http://people.cs.umass.edu/~verts/cmpscil19/cmpscil19.html>

<http://people.cs.umass.edu/~verts/cmpscil19/quizzes/quizzes.html>

**Twitter and other 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%	Tuesday, October 11, in-class. Open notes.
Midterm 2	15%	Wednesday, November 2, in-class. Open notes.
Final Exam	20%	Wednesday, December 21, 1:00-3:00, ILC S240. Open notes.
Projects:	40%	Throughout semester. Late penalties will apply as appropriate.
Homework	10%	Occasional (assigned homework, in-class exercises, on-line homework, etc.)

**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 any 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-).

**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), located at <https://github.com/gatech-csl/jes/releases> for free download. There are versions that run on both PCs and Macs. In addition, “standard” versions of Python may be downloaded from <http://www.python.org/>, and Mac users have Python already installed, accessible from the Terminal application. 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.

**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/](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.

**Day-By-Day Schedule (Very Tentative):**

	Monday	Wednesday	Friday
1	September 5 – Labor Day Holiday	September 7 – First Lecture – Intro to course. What is programming all about? ( <i>It's mostly debugging!</i> )	September 9 – Data, data types. Interactive Python. <i>Debugging.</i>
2	September 12 – Easy programs. def, return, print, and raw_input. <i>Debugging.</i>	September 14 – Python if statements. The pass statement. <i>Debugging.</i>	September 16 – More on def, parameter passing. Python while statement. <i>Debugging.</i>
3	September 19 – Lists, tuples, and strings, more on functions. JES I/O functions. <i>Debugging.</i>	September 21 – while loops with lists and ranges, for loops with ranges. <i>Still debugging.</i>	September 23 – List comprehensions. Writing to simple text files. <i>Debugging.</i>
4	September 26 – Introduction to graphics. Canvases and pixels. <i>Debugging.</i>	September 28 – Graphics a la JES. Lines, rectangles, ovals, circles, color. Plotting text. <i>Debugging.</i>	September 30 – More on Color. Time delays. Creation of movies. <i>Debugging.</i>
5	October 3 – Intro to image processing. Image processing on one pixel at a time. <i>Debugging.</i>	October 5 – Random numbers. Sierpinski Gasket. <i>Debugging.</i>	October 7 – Review for midterm.
6	October 11 (TUESDAY) – MIDTERM #1	October 12 – Command-line programming. Boolean & character functions. <i>Debugging.</i>	October 14 – Image filtering. Image mirroring and flipping. <i>Debugging.</i>
7	October 17 – Passing functions as parameters in Python. <i>Debugging.</i>	October 19 – 3x3 filters (blur, edge detect, etc.). <i>Haven't we finished debugging yet?</i>	October 21 – Dithering and rotation of images. <i>Debugging.</i>
8	October 24 – Hierarchical decomposition. Nested functions. Sprites in 2D. <i>Debugging.</i>	October 26 – More on nested functions. Recursion. Complex Math. <i>Debugging.</i>	October 28 – String slicing and dictionaries in Python. <i>Debugging.</i>
9	October 31 – Review for midterm.	November 2 – MIDTERM #2	November 4 – Global variables. Writing text files redux. HTML & SVG files. <i>Debugging.</i>
10	November 7 – Linear blending in 2D and 3D. Blending lines and colors. <i>Debugging.</i>	November 9 – Blending parabolas and cubics. Polygon Fill. <i>Debugging.</i>	November 11 – Veterans Day Holiday
11	November 14 – Introduction to 3D orthographic projections. 3D/4D/5D to 2D Projections. <i>Debugging.</i>	November 16 – 3D Lines and Polygons, image scaling. Hierarchical decomposition in 3D. <i>Debugging.</i>	November 18 – I must be away; TA(s) will do some kind of in-class exercise.
12	November 21 – Thanksgiving Holiday	November 23 – Thanksgiving Holiday	November 25 – Thanksgiving Holiday
13	November 28 – Theory of sounds. <i>Debugging.</i>	November 30 – Python for scientific computing. Polynomials. <i>Debugging.</i>	December 2 – Python from UNIX. <i>Debugging.</i>
14	December 12 – Catch-up Day. Showing student Sunrise projects. <i>No more debugging!</i>	December 14 – Last Day of Class. Review for Final Exam.	December 21 WEDNESDAY – Final Exam 1:00pm-3:00pm in ILC S240