

PIC 16, Winter 2018

Week: 1, Day: Wednesday



Lecture 1W: Introduction to Python

Wednesday, January 10, 2018

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Enrollment

- If not yet enrolled
 - Attend and complete assignments
 - Email me for access to CCLE and PIC lab (if needed)
 - After two weeks, those on wait list will be enrolled automatically
 - So keep checking waitlist
 - Others can be added by late petition if there is space
 - No PTE numbers (department policy)

Announcements

- Preparation 1F posted on CCLE
- There is no Assignment 1M or 1W.
 - The first assignment will be Assignment 1F (to be posted Fri.)
 - You will have the option of completing that or Assignment 2W
 - Please see “[Regarding Tracks](#)” (CCLE – Course Materials) for complete assignment schedule.
- Office Hours Wednesday typically 12:25 p.m. – 2:25 p.m. in MS 6617A (see syllabus)
 - But today I can’t start until 1:30
- Office hours Friday typically 12:00 p.m. – 12:30 p.m.
 - But this Friday they will be 10:30 a.m. – 11:00 a.m. in PIC Lab
- Discussion tomorrow in PIC Lab

Intended Learning Outcomes

- By the end of today, I want you all to be able to:
 - install Anaconda on your personal computer;
 - interact with Python via the command line, Jupyter Notebook, and Spyder; and
 - write simple Python programs. (Basically, you should be able to write almost any program you can write in C++.)

5 Major Differences: Python vs C++

C++

- Compiled
- Manual memory management / garbage collection
- Statically typed
- Variables exist on the stack (some objects on the heap)
- All variables are mutable, unless `const`

Python

- Interpreted
- Automatic garbage collection and no explicit pointers
- Dynamically typed
- Only variable *names* are on the stack, all contents are objects on the heap
- Some variables are *immutable*

12 Syntactic Differences: Python vs C++

C++

- ;
- {}
- `for (i = 0; i < 10; i++){}`
- `if/while(x){}`
- `int fun(){}`
- `#include`
- `true/false`
- `//`
- `&&, ||, !`
- `x++`
- `cout, cin`
- `const`

Python

- (end line)
- (indentation)
- `for i in range(10):`
- `if/while x:`
- `def fun():`
- `import`
- `True/False`
- `#`
- `and, or, not()`
- `x=x+1`
- `print, input/raw_input`
- (no equivalent)

Questions?

Quiz 1W

- Please complete Quiz 1W on CCLE
- Please *do not* refer to the preparation document or other materials. Answers are to come from your brain only.
- Remember to avoid guessing; there is negative credit for wrong answers
- See “[Regarding Quizzes...](#)” (CCLE – Course Materials) for important information about quizzes
- Password: cheetah