INFO.GB.2135.20: Python Fundamentals & Programming

Spring 2018, M/W 1:20-2:50PM , Location KMC 3-130
Class Start Date: 2/4/19 Class End Date: 3/27/19

Instructor:
Navin Manglani, nmanglani@stern.nyu.edu
Professor Bio: http://w4.stern.nyu.edu/faculty/bio/nmanglan
Office Location & Hours (by appointment): KMC 8-171, M/W 3-5pm

Course Overview:
In addition to providing an overview of how Python is used in the business world today, this course is intended to teach those with no programming background how to program and manipulate basic data using Python 3. This class is structured to be very interactive, and key concepts will be reinforced in class by allowing students to code on their laptops along with the instructor. After the completion of the course, students will be able to write intermediate level programs using Python. This can serve as a good foundation to learn other applications of Python (such as data visualization, web scraping, mobile development, etc.) as well as other programming languages such as Ruby on Rails, SQL and Perl.

Scope of Class:
By the end of this class, in addition to understanding the uses of Python and command line basics, students will be able to use Python to:

- Output data and information
- Create variables and objects
- Prompt for and store user input
- Use conditional and loop constructs to control flow execution
- Create and execute functions
- Test & debug programs
- Create structured data with lists & tuples
- Create object-oriented python programs (Including inheritance & polymorphism)

Students will also learn about the various applications of Python, best practices in writing Python code and techniques to debug Python programs. Advanced topics may be introduced in the last few classes depending on how the class progresses throughout the term.

Requirements:
Textbook: Murach's Python Programming by Michael Urban and Joel Murach, 2016 Edition. Available at NYU Bookstore and online.

Students are required to bring a laptop to every class with Python 3.6 installed. Time will be provided in the first class to install Python 3.6. If students do not own a laptop, they can loan a laptop from the library for use during class. The laptop must allow for installation of third-party packages and tools. The laptop should also have sufficient processing power and RAM in order to run several programs at once. The instructor will be using a MacBook Pro, but instructions will be altered to accommodate those with laptops running on Windows.

Student Evaluation:
Mid-Term (35%): A mid-term exam that will consist of a written portion and a lab portion will be administered in-class. The written portion will be closed book, while the lab portion will be open book.

Final Exam: (40%): Like the mid-term, the final exam will consist of a written portion and a lab portion that will be administered on the last day of class.

Assignments (15%): There will be four take-home assignments. Students are welcome to work together on homework assignments. Homework assignments will be graded on a pass / fail basis. Students are responsible for checking their work against the answer key. Feedback will not be provided on homework assignments.

Participation: (10%): Student participation in discussions, class feedback forms, attendance in class and use of class time to work on class-related materials will collectively contribute to the participation grade.

Key Dates:
Mon 2/4: First day of Class
Wed 2/27: Mid-Term
Wed 3/27: Final Exam and Last Day of Class

Detailed Class Schedule on Next Page

Disabilities:
If you have a qualified disability and will require academic accommodation of any kind during this course, you must notify me at the beginning of the course and provide a letter from the Moses Center for Students with Disabilities (CSD, 998-4980, www.nyu.edu/csd) verifying your registration and outlining the accommodations they recommend. If you will need to take an exam at the CSD, you must submit a completed Exam Accommodations Form to them at least one week prior to the scheduled exam time to be guaranteed accommodation.

Laptop Policy:
Please bring your charged laptop to class. It will be very difficult to gain the full benefit of these lessons without having your laptop with you.

Exam Attendance Policy:
Makeup exams will not be given. Those who fail to show up for any exams will receive a zero for the exam. Those who show up late to exams must finish the exam within the originally allotted time and will not be allowed to submit their exam late.

Class Schedule:

Date	Lsn #	Concepts	Recommended Reading
M 2/4	1	About Python, Class Overview & Setup, Printing Data	Ch 1, pg 1-20
W 2/6	2	Basics Part 1: Types of Data, Assigning Variables, Manipulating Text	Ch 2, pg 27-37, 50-51
M 2/11	3	Basics Part 2: Gathering User Input & Manipulating Numbers	Ch 2, pg 38-64, Ch10 pg 250-255
W 2/13	4	Control Statements Using Boolean Expressions	Ch 3, pg 65-102
M 2/18		**NO CLASS**	
W 2/20	5	Defining & Using Functions & Modules	Ch 4, pg 103-139
M 2/25	6	Testing & Debugging	
W 2/27	7	**MIDTERM**	
M 3/4	8	Lists, Tuples & Dictionaries	Chs 6 & 12, pg 163-194, 324-346
W 3/6	9	How to Work With Files & Exceptions	Ch 7 & 8, pg 195-246
M 3/11	10	Intro to Object Oriented Programming	Ch 14, pg 365-404
W 3/13	11	OOP Part 2: Inheritance & Parent-Child Relationships	Chs 15 & 16 pg 405-458
M 3/18		**NO CLASS**	
W 3/20		**NO CLASS**	
M 3/25	12	Review + Python & Beyond	
W 3/27	12	Final Exam	