CM 151 – Introduction to Computational Science – Fall 2013

Instructor: Dr. Eric S. Ho (hoe@lafayette.edu)
Office: Kunkel 13
Office hours: Tuesday, Thursday 2-4 pm (or by appointment)

Lecture: MWF 1:10-2:00 pm, Venue: AEC 500
Lab: MW 2:45-4:00 pm, Venue: AEC 515

Course Description:
Python is a widely acclaimed programming language by scientists, engineers, economists, mathematicians, IT developers, etc. for its simplicity, portability, versatility, and extensibility. In this course, students will learn general computer science and programming concepts using Python. Through hands-on programming exercises, students will acquire basic skills in writing, troubleshooting, understanding and modifying a Python program.

Learning Outcomes:
At the completion of this course, students should be able to:
- Master semantics and syntax of Python
- Define and operate Python's built-in data structures: list, dictionary, and set
- Formulate programming approach to solve their problems
- Read Python documentation
- Install specialized Python packages

Grading Policy:
- Class and lab participation (10%)
- Ten take home assignments (30%)
- Three exams, 20% each (60%)

Home assignments require individual work. They are programming exercises adopted from the required textbook. Assignments are usually due in one week.

Late assignment:
- If submission is late but within 24 hours of due time (Moodle time), it will still be graded but 50% of the actual earned points will be deducted, e.g. the assignment has earned 2 points out of 3, only 1 point will be given.
- If submission is late by more than 24 hours, it will not be graded and receive zero point.

Required Textbook:
PYTHON programming: An introduction to Computer Science, 2nd John Zelle, Franklin, Beedle & Associates Inc.

Students are required to read the assigned reading from the textbook. Examinations are based on materials from lectures AND the textbook.

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Academic Honesty:
You are expected to abide by the college policy on Intellectual Honesty (see student handbook and attached document).

Useful Links:
1. Python documentation: http://doc.python.org
2. Python: http://python.org/
3. Stackoverflow: http://stackoverflow.com/
4. pythonanywhere https://www.pythonanywhere.com/
5. http://www.econpy.org/ (tailored for economists)

Week	Major Topics	Assigned Reading
1	Introduction and overview of the course Writing Simple Program	Ch 1,2
2	Computing with numbers	Ch 3
3	Objects and graphics	Ch 4
4	Sequences: strings, lists, and files	Ch 5
5	Defining functions **Sep 27: Exam 1 (week 1-5)**	Ch 6
6	Decision structures	Ch 7
7	Loop structures and Booleans	Ch 8
8	Oct 14 - Fall break Simulation and design	Ch 9
9	Defining class	Ch 10
10	**Oct 25: Exam 2 (week 6-9)** Data collections	Ch 11
11	Object-oriented design	Ch 12
12	Algorithm design and recursion	Ch 13
13	Python for Economics/Math problems	
14	Regular Expression Nov 27-29 Thanksgiving	
15	Regular Expression Review Final Exam (to be scheduled)	