CAS CS 111
Introduction to Computer Science I
Boston University

Draft Syllabus for Fall 2014

Description: The first course for computer science majors and anyone seeking a rigorous introduction. Develops computational problem-solving skills by programming in the Python language, and exposes students to variety of other topics from computer science and its applications.

Prerequisites: none

Instructor
David G. Sullivan, Ph.D. (dgs @ cs . bu . edu, removing the spaces)
office hours: TBA
office: Psychology Building (PSY), room 228D, 64 Cummington Mall (behind Warren Towers)

Teaching Fellows/Assistants
TBA

Meeting Times and Places
lectures: section A1: MWF, 10-11
section B1: MWF, 12-1
plus a weekly, one-hour lab session in the CS teaching lab, EMA 304.

Course Website: http://www.cs.bu.edu/courses/cs111

Requirements
1. Weekly problem sets
2. Two midterms
3. Final project
4. Final exam
5. Participation: online reading quizzes, and attendance at and participation in both the lectures and labs

Textbook
CS for All by Christine Alvarado, Zachary Dodds, Geoff Kuenning, and Ran Libeskind-Hadas. This is an online textbook that is available here:
http://www.cs.hmc.edu/csforall/index.html

Schedule (tentative)

week	lecture dates	Topics and exams
1	9/3, 9/5	Course overview and introduction Computational problem-solving Getting started in Python
2	9/8, 9/10, 9/12	Functions Making decisions (conditional execution) Recursion
3	9/15, 9/17, 9/19	More recursion Higher-order functions; list comprehensions
4	9/22, 9/24, 9/26	Program and algorithm design
5	9/29, 10/1, 10/3	Representing information Digital logic **Midterm 1**
6	10/6, 10/8, 10/10	Circuit design and computer organization
7	**10/14**, 10/15, 10/17	Assembly language
8	10/20, 10/22, 10/24	Loops and imperative programming User input Cumulative computations
9	10/27, 10/29, 10/31	References; mutable vs. immutable data 2D arrays and nested loops
10	11/3, 11/5, 11/7	Dictionaries File processing **Midterm 2**
11	11/10, 11/12, 11/14	Object-oriented programming
12	11/17, 11/19, 11/21	More OOP; inheritance Large-scale problem solving
13	11/24	Overview of the final project
14	12/1, 12/3, 12/5	State machines
15	12/8, 12/10	Problem “hardness”; uncomputability
		Final exam