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
<table>
<thead>
<tr>
<th>week</th>
<th>lecture dates</th>
<th>Topics and exams</th>
</tr>
</thead>
</table>
| 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** |