

CAS CS 111: Introduction to Computer Science I

Boston University

Fall 2009

Syllabus

Description: This first course in computer science develops basic skills in computer programming using the Java programming language. The course is suitable for mathematics and physical science majors, and others interested in a rigorous introduction. It is also the first course in the computer science concentration. The course will introduce the process of developing algorithms to solve problems, and the corresponding process of developing computer programs to express those algorithms.

Prerequisites: none

Instructor

David G. Sullivan, Ph.D. (dgs @ cs . bu . edu)

office hours: Mon., 3-5 p.m.; Wed., 2-4 p.m., and by appointment

office: Psychology Building (PSY), room 228D

64 Cummington Street (behind Warren Towers)

Teaching Fellows

Adrian Heilbut (amh @ bu . edu)

Ye Li (liye @ bu . edu)

See the staff page of the course website for their office hours.

Meeting Times and Places

lectures:

section A1: MWF, 10-11

section B1: MWF, 12-1

labs:

section A2: Mon., 11-12

section A3: Mon., 1-2

section A4: Mon., 3-4

section B2: Tues., 12-1

section B3: Tues., 2-3

section B4: Tues., 3-4

All labs meet in the CS teaching lab, EMA 304.

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

Please consult this site *frequently* (at least once per week) for important announcements and updates to the course materials handed out in lecture.

Requirements

1. Ten problem sets
2. Three quizzes
3. Final exam
4. Attendance at and participation in both the lectures and labs

The exam and quizzes are closed-book.

Policies

Lateness policy: Assignments must be submitted by the date and time listed on the assignment. There will be a 10% deduction for homework that is up to 24 hours late, and a 20% deduction for homework that is 24-48 hours late. **We will not accept any homework that is more than 48 hours late.**

Plan your time carefully, and don't wait until the last minute to begin an assignment. Starting early will give you ample time to ask questions and obtain assistance from members of the course staff.

Determining the final grade:

attendance/participation	10%
assignments	40%
quizzes	25%
final exam	25%

Extensions and makeup quizzes/exams will only be given in *documented* cases of serious illness or other emergencies.

You cannot redo or complete extra work to improve your grade.

Incompletes will not be given.

Collaboration Policy*

The collaboration policy for this class is as follows.

- You are strongly encouraged to collaborate with one another in studying the textbook and the lecture material.
- As long as it satisfies the following conditions, collaboration on the homework assignments is encouraged and will not reduce your grade:
 1. Before discussing each homework problem with anyone else, you must give it an honest half-hour of serious thought.
 2. You may discuss ideas and approaches with other students in the class, but not share actual code or solutions to other types of problems. In other words, the work you submit must be entirely your own, which you must complete without looking at other people's work, and you must not permit others to copy your work. You must also **acknowledge clearly in the appropriate portion of your solutions** (e.g., in the comments of your code) people with whom you discussed ideas for that portion.
 3. You may get help from the teaching staff and from tutors in the lab for specific homework problems. Don't expect them to do it for you, however.

4. If you get *really* stuck with a bug in a program (defined roughly as over an hour of frustration), you are allowed to get help from a friend **as long as you acknowledge that help clearly in your solutions** (e.g., in the comments of your code).
 5. You may not work with people outside this class (but come and talk to us if you have a tutor), seek online solutions, get someone else to do it for you, etc.
- You are not permitted to collaborate on exams.

The last point is particularly important: if you don't make an honest effort on the homework but always get ideas from others, your exam score will reflect it.

Violations of Collaboration Policy*

Violations of collaboration policy fall into two categories: ones that are *acknowledged* at the time they occur (for example, in clearly marked comments in your code) and ones that are *unacknowledged*.

Acknowledged violations (e.g., using someone else's code for a method you didn't know how to write yourself, and stating clearly in your code that this is not your own work) will result in an appropriate reduction in the grade, but will not be considered cheating.

Unacknowledged violations of the collaboration policy—for example, not stating the names of your collaborators, or any other attempt to represent the work of another as your own—will result in an automatic failing grade and will be reported to the Academic Conduct Committee (ACC). The ACC often suspends or expels students deemed guilty of plagiarism or other forms of cheating. We will assume that you understand the CAS Academic Conduct Code, copies of which are available in room CAS 105.

If you are uncertain as to whether a particular kind of interaction with someone else constitutes illegal collaboration or academic dishonesty, please ask Dr. Sullivan *before* taking any action that might violate the rules; if you can't reach him in time, then at the very least include a clear explanation of what happened in your homework write-up to avoid being treated as a cheater. Citing your sources is usually the easiest way out of trouble.

Textbook

Building Java Programs by Stuart Reges and Marty Stepp (Addison Wesley, 2008).

We will be using a custom edition of this textbook (ISBN 0536880565) that includes just the material that we will cover in lecture. This "Boston University edition" – which is less expensive than the standard edition – is available for purchase at Barnes & Noble. Students may also use the standard edition of the textbook (ISBN 0321382838).

* Thanks to Prof. Leo Reyzin, who wrote the original versions of the sections describing the collaboration policy and violations to that policy. I have made only minor modifications.

Schedule (tentative)

week	lecture dates	topics, exams, and special dates	readings
1	9/2, 9/4	Course overview; programming in Java Procedural decomposition; simple methods <i>No lab meetings this week</i>	chap. 1
2	9/9, 9/11	Procedural decomposition (cont.) Primitive data, types, and expressions Problem Set 1 due on 9/10 <i>No lecture on 9/7 (Labor Day)</i> <i>No lab meetings this week</i>	sect. 2.1, 2.2
3	9/14, 9/16, 9/18	Primitive data, types, and expressions (cont.) Definite loops Problem Set 2 due on 9/17 <i>9/16: last day to add a class</i>	sect. 2.3-2.5
4	9/21, 9/23, 9/25	Methods with parameters and return values Using objects from existing classes Problem Set 3 due on 9/24	sect. 3.1-3.3
5	9/28, 9/30, 10/2	Using objects (cont.) Quiz 1 on 10/2	sect. 3.4
6	10/5, 10/7, 10/9	Conditional execution Indefinite loops Problem Set 4 due on 10/8 <i>10/7: last day to drop without a 'W', and to change from credit to audit status</i>	chap. 4; sect. 5.1-5.3
7	10/13 , 10/14, 10/16	Indefinite loops (cont.) File processing Problem Set 5 due on 10/15 <i>No lecture on 10/12 (Columbus Day)</i> <i>Lecture on Tues. 10/13 (Mon. schedule)</i> <i>No lab meetings this week</i>	sect. 5.4-5.6 chap. 6
8	10/19, 10/21, 10/23	File processing (cont.) Arrays Problem Set 6 due on 10/22	chap. 7
9	10/26, 10/28, 10/30	Arrays (cont.) Quiz 2 on 10/30	see above
10	11/2, 11/4, 11/6	Recursion Problem Set 7 due on 11/5	chap. 12
11	11/9, 11/13	Recursion (cont.) Object-oriented programming: writing "blueprint" classes Problem Set 8 due on 11/12 <i>No lecture on 11/11 (Veteran's Day)</i> <i>11/12: last day to drop a class with a 'W'</i>	chap. 8

12	11/16, 11/18, 11/20	Object-oriented programming: writing blueprint classes (cont.) inheritance and polymorphism Problem Set 9 due on 11/19	sect. 9.1-9.4, 9.6
13	11/23	Object-oriented programming (cont.) <i>No lectures 11/25 or 27 (Fall recess)</i>	see above
14	11/30, 12/2, 12/4	Searching and sorting; algorithm efficiency Quiz 3 on 12/2	chap. 13
15	12/7, 12/9, 12/11	Searching and sorting (cont.) Case study: tackling an intractable problem Problem Set 10 due on <i>Tuesday</i> 12/8	see above
		Final exam: A1: Mon., 12/21, 9-11 a.m. B1: Fri., 12/18, 3-5 p.m. <i>Important:</i> Students must take the exam at the time scheduled for their section.	