CSc 103 Introduction to Computing for Majors, 2014 Fall

DESCRIPTION

Intensive introduction to computing, tailored to the needs of those majoring in computer science and computer engineering. Introduction to programming in a modern object-oriented programming language such as C++, with particular emphasis on the logical evolution of working programs from specifications.

Prereq.: Math 195 Precalculus

4 class hr./wk.; 3 cr.

Note: Require Department permission for non-CCNY student to attend this course. This course is only for CS/CpE majors and minors.

LEARNING OBJECTIVES

You will learn the basics of procedural computer programming (primarily in C++). This includes an understanding of data types and variables, branching and looping constructs, pointers and recursion. Additionally, we will introduce some standard tools for programming, and cover the basic operation of a computer. Lastly, we introduce elementary data structures, the standard template library, and the basics of object oriented programming.

COURSE OUTCOMES

1. Basic understanding of the structure and operation of a computer
2. Knowledge of code development and debugging in modern programming language
3. Knowledge of programming with control structures appropriate to the intro course; introduction to recursion
4. Knowledge of programming with primitive data structures
5. Knowledge of standard library objects and functions, such as strings and input/output
6. Knowledge of problem solving with procedural programming; programming idioms
7. Basic understanding of object-oriented programming and its key abstraction techniques

REQUIRED MATERIALS


Textbook can be found in CCNY bookstore. The lecture notes mostly adapted from the textbook authors and some sample C++ codings will be placed online.
Assignments, Grading, and Policies

We will meet Tuesday and Thursday 11:00-11:50 AM at NAC4/156. See the tentative timetable for a schedule in the left tab (Lectures). In addition, there are recitation sessions on Friday morning. There will be ten programming assignments distributed roughly every week (counted 70% of your final grade). There will be three in-class exams (30%). All programming assignments and exams will be graded by instructors (TA and me). Dates of these exams will be announced beforehand. There will be no final exam.

GRADING POLICIES

- The course work must be carried out individually. Instructions to submit each assignment will be given later.
- Generally speaking, the assignments are work to be done outside of class. I may spend some class time describing the assignments, but I will likely not devote much class time to explaining "how to" do them. You can always find me during office hours if you need additional assistance or guidance, but I do believe it is extremely valuable to fight through as much as possible on your own.
- On a related note, I encourage you to "discuss ideas with one another" regarding the assignments, but I do require that all answers (written, source code, etc.) be completed separately by each individual. In addition to being a violation of the academic integrity policy specified below, it really is a disservice to yourself to copy assignments from others. There is no better road to understanding than to struggle through things yourself.
- Warning: the programming assignment must be done independently. Sharing materials with classmate, especially programming work including logic, and/or modifying the materials to fabricate and reproduce other versions is very seriously treated based on the CUNY
Academic Integrity Policy. Do not underestimate my reaction resulted from breaking this rule. Trying an assignment and failing is OK! Sometimes the problems are difficult, and I don’t expect everyone to get everything right. What is not OK, is to submit work that is not your own. Upon a single offense, you will at a minimum be removed from the class with a failing grade.

- Late assignment submission will be allowed only within three days with score deduction of 25%. Submission after three days may be received but with a significant score reduction. Handling of late submission is defined in each assignment description.
- Three exams will be given in class. You are expected to arrive at the beginning of the class period, and no extra time will be given for late arrivals. Absolutely no make-up exams will be considered for absent students. During exam, you must not place your seat close to other students. Smartphone and handheld devices are disallowed. Violation or any unfair activity will be treated as cheating. An unexcused absence will be given a grade of 0, and an excused absence (which is extremely unlikely) may be replaced by the corresponding section of the final exam. The instructor should be notified before missing any exam if at all possible and immediately thereafter when not possible. The instructor will determine if the absence from an exam will be excused.
- This course will not award incomplete grade to help you recover from failing grade or repeat course. Any disagreement resulted from my grading must be reported in writing for the resolution.

LECTURE ATTENDANCE

I will not take attendance. But, you are strongly encouraged to attend lectures. I believe in a close, open and interactive classroom environment whenever possible. This typically leads to far greater understanding than what the (non-interactive) book alone can offer. Almost 20-year teaching experience of mine indicates a very strong correlation between seeing faces and getting better grades.

COMMUNICATIONS

Your time is valuable; I want you to get as much as possible out of your time in the classroom with me. Please don’t hesitate to let me know how you feel about the pace, or just about how things are going in general.
## Lecture Tentative Schedule

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Read</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Chs 0</td>
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<tr>
<td>2</td>
<td>Introduction (cont.)</td>
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<td>3</td>
<td>Computation; Errors</td>
<td>Chs 4</td>
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<tr>
<td>4</td>
<td>Writing a Calculator Program</td>
<td>Ch 6</td>
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<td>5</td>
<td>Writing a Calculator Program (cont.)</td>
<td>Ch 7</td>
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<tr>
<td>6</td>
<td>Functions, etc.</td>
<td>Ch 8</td>
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<tr>
<td>7</td>
<td>Classes, etc.</td>
<td>Ch 9</td>
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<td>8</td>
<td>Input and Output</td>
<td>Chs 1</td>
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<td>9</td>
<td>A Display Model</td>
<td>Ch 12</td>
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<td>10</td>
<td>Graphics Classes</td>
<td>Chs 1</td>
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<tr>
<td>11</td>
<td>Graphing; GUIs</td>
<td>Chs 1</td>
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<td>Vectors</td>
<td>Chs 1</td>
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<td>Containers and Iterators; Algorithms and Maps</td>
<td>Chs 2</td>
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<tr>
<td>14</td>
<td>Summary</td>
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### Information about the Recitation Class (on Friday)

Attached Files:  

- csc103.pdf (44.043 KB)

See the attached .pdf file for information on the recitation class.
Coding Demonstration at Lecture

Recitation class
Material from the recitation class on Friday.