Introduction to Computer Science I
Spring 2016-2017 Course Syllabus
(Based upon Mal Gunasekera’s syllabus from Fall 2012)

Instructor: David Chelberg
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Office Hours: Mon., Wed. 10:45am-11:45am, Thurs. noon-1pm, and by email appointment.

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Call Numbers: 2615 Lecture Mon./Wed./Fri. 9:40am – 10:35am Stocker 103

In addition to lecture you must be registered for a lab section, see the on-line system for which sections correspond to this class.

Prereq: Math 113 or 1200 or Math Placement Level 2 or higher


Grading: Your grade will be based on a composite score computed according to the following breakdown:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Lab assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>MyProgrammingLab</td>
<td>5%</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

Grades are computed according to the following scale (but may be curved at the instructor’s discretion):

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93% - 100%</td>
<td>A</td>
</tr>
<tr>
<td>89.5% - 93%</td>
<td>A-</td>
</tr>
<tr>
<td>87% - 89.5%</td>
<td>B+</td>
</tr>
<tr>
<td>83% - 87%</td>
<td>B</td>
</tr>
<tr>
<td>77% - 79.5%</td>
<td>C+</td>
</tr>
<tr>
<td>79.5% - 83%</td>
<td>B-</td>
</tr>
<tr>
<td>77% - 79.5%</td>
<td>C+</td>
</tr>
<tr>
<td>73% - 76.9%</td>
<td>C</td>
</tr>
<tr>
<td>67% - 72.9%</td>
<td>C-</td>
</tr>
<tr>
<td>63% - 66.9%</td>
<td>D+</td>
</tr>
<tr>
<td>60% - 62.9%</td>
<td>D</td>
</tr>
<tr>
<td>0% - 59.9%</td>
<td>F</td>
</tr>
</tbody>
</table>
Grading Policy:

There will be one midterm exams and a comprehensive final exam. There will also be short pop quizzes throughout the quarter, except for the week of the midterms. **Quizzes cannot be made up** and students missing a class on the day of the quiz will be given zero. According to the Undergraduate Catalog (Class Attendance Policy), certain absences are permitted. Missed quiz grades as a result of an excused absence will be the average of the grades you receive on all the other quizzes taken during the quarter. The lowest quiz grade is dropped. Also if because of some exceptional circumstance you cannot attend test, contact your instructor **before** the fact, not after, to discuss your options.

Important dates:

The Midterm will be Friday, March 3. The final exam will be on Friday, April 28, at 1:00 p.m. **The final will not be given early.**

Expectations:

Plan to devote a large amount of time outside of class **(at least three hours per class)** to the designing, coding, debugging, and testing of programs. You will be expected to complete lab assignments and homework assignments, to study assigned sections in the textbook, and to work out exercises in the book every week.

Attendance Policy:

Attendance and class participation are important and sometimes become a factor in determining the final grade. Students **must** attend laboratory sessions.

Lab Grade:

Your lab grade will be determined by the work you accomplish in the two hours you are actually in the lab. In addition, some pre-lab work may be required to be completed before the labs. If you miss a lab, you will be given a zero for that lab unless you have made prior arrangements with your TA.
Academic dishonesty:

In this course it is acceptable for students to discuss general concepts with other students. However, students are expected to turn in only their own work with proper documentation. If another student turns in your work, or if you turn in the work of another person, all students involved will receive a zero on that assignment. If I find further evidence of cheating you will receive a zero for another assignment or an F in the course and I will report the matter to university judiciaries.

Course Overview:

This is the first required computer science. This course provides an introduction to computer science, the discipline of computing, and the programming language C++. Programming is a fundamental skill for computer scientists and engineers. While programming is not the only task performed by computer scientists “on the job,” this skill forms the foundation for computer scientists to build upon for more advanced aspects of computing such as networking, databases, computer graphics/game engines, artificial intelligence, etc.

List of Topics

1. Introduction to C++, Review of Algorithms (chap 1)
2. Introduction to Unix and C++ basics (chap 2)
3. Loops and Advanced Flow of Control (chap 3)
4. Procedural Abstraction and Functions that return a value (chap 4)
5. Functions (chap 5)
6. I/O Streams (chap 6)
7. Statically Allocated Arrays (chap 7)
8. String class (chap 8)
9. Pointers, Dynamic Memory and Dynamic Arrays (chap 9)
10. Objects and Classes (chap 10)
11. Friend Functions and Operator Overloading (chap 11)
12. Defining ADT Operations and Separate Compilation (chap 12)
13. Short Version of ACM Code of Ethics

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1 Taken From Dr. David Juedes’s Fall 2009 Computer Science 240 A Syllabus
Course outcomes mapped onto student outcomes:

“As an ABET accredited computer science (and electrical engineering) degree program, we are expected to demonstrate that student can master certain general skills by the time of graduation. These skills are referred to as “program outcomes.” Each course in our curriculum has a set of “course outcomes” that help students achieve the general skill sets specified by the program outcomes.”

The following outcomes will be covered in this class. The * indicates the outcome that will be assessed in this class.

A: Ability to apply knowledge of computing and mathematics appropriate to the discipline.
   A1. Student is able to apply sorting techniques, to an array of unsorted integers, showing the contents of the array at each pass of the algorithm

C: An ability to design, implement and evaluate a computer based system, process, component or program to meet desired needs.
   C1. Implements a software module and demonstrate that it compiles and links without errors.
   C2. Designs and implements a software module and justify that it meets stated requirements.

*H: A recognition of the need for and an ability to engage in continuing professional development.
   H1. Student is able to identify resources (printed and electronic) to obtain technical information.
   H2. Student is able to recognize the importance of professional society membership and participates in related activities.

Note:
- All assignments and labs will be available via a course account on the prime computers (machines in Stocker 307, other computer labs, p1, p2, etc.).
- Homework is due by the time specified; late homework will lose 20% of its value per day late.
- The tests, and quizzes will be closed book, closed notes.
- The final exam will be comprehensive, although it will emphasize the material in the latter part of the course.

2 Taken From Dr. David Juedes’s Fall 2008 Computer Science 240 A Syllabus