Casper College Course Syllabus

COSC 1030*N1 — Computer Science I (online)
Spring 2015

Lecture hours: 3
Lab hours: 2
Credit hours: 4
Instructor's name: Kevin Lenth
Office: PS 341
Office hours: M 1–2, T 9–10, W 11–12, Th 11–1, F 11–12
Office phone: (307) 268-2519
E-mail: lenthk@caspercollege.edu

Course Description

Study of algorithmic problem solving using principles of structured programming and object-oriented design. Algorithms are implemented in a high-level, object-oriented language. Programming assignments and experimentation with software in a closed laboratory supplement the discussion.

Prerequisites

Previous programming experience required and COSC 1010 or instructor permission

Goal

This course reintroduces the fundamental structures of programming (variables and data types, expressions, selection and repetition structures, functions, and arrays) in the context of the language C++; additionally, students are taught recursion and the fundamentals of object-oriented design. By the end of the course, the successful student will be able to integrate all of these structures for the solution of problems.

Outcomes

General education

This course meets the following Casper College general education outcomes:

3. Solve problems using critical thinking and creativity
8. Use quantitative analytical skills to evaluate and process numerical data

Casper College may collect samples of student work demonstrating achievement of the above outcomes. Any personally identifying information will be removed from student work.
Course objectives

Upon successfully completing this course, students will be able to

✦ explain what a recursive function is and give topical examples of their application;

✦ define important words in the terminology of object-oriented programming and give examples of their use;

✦ design and implement a C++ class for a given specification;

✦ combine the various tools of programming appropriately to solve problems.

Methodology

This course is offered in the distance format; course material is presented in the form of short prerecorded videos supplemented by reading assignments from the textbook. Students are responsible for watching these videos and reading the assignments, filling out online quizzes, doing programming assignments on their own computers, and discussing course material through Moodle discussion forums.

Evaluation Criteria

The grade breakdown is as follows.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>45%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>30%</td>
</tr>
<tr>
<td>MyProgrammingLab problems</td>
<td>15%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
</tr>
</tbody>
</table>

Final grades will follow the usual 60/70/80/90 scale (90% or higher is an A, etc.) with the following exceptions:

✦ Students shall not receive a passing grade unless they earn a passing grade (60% or higher) within the assignments, quizzes, and MyProgrammingLab problems categories individually. For instance, a student who has 70% overall but only 40% on assignments will receive an F.

✦ Students who demonstrate dedication to the course (i.e., much class participation, asking questions and/or answering others') may have their final grade bumped upward in borderline cases at the instructor’s discretion.

Assignments will be given to allow students to master each section of course material and may take the form of either written work or a program. In the case of programming assignments, the grade breakdown is summarized below.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>70%</td>
<td>The submission correctly and completely implements the required behavior</td>
</tr>
<tr>
<td>10%</td>
<td>The submission is structured in a reasonable fashion and makes use of appropriate language constructs</td>
</tr>
<tr>
<td>10%</td>
<td>The submission is adequately commented and easy to read</td>
</tr>
<tr>
<td>10%</td>
<td>A sufficient narrative document is supplied</td>
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</tbody>
</table>
If the submitted program does not compile, no grade higher than 50% will be awarded.

Each programming assignment submission must be accompanied by a narrative document, a brief description of the purpose of the program along with a discussion of the process of writing the program (challenges, mistakes found, additional resources used, etc.).

Frequent quizzes will be given to test the students’ command of the textbook material. These quizzes will be given through the Moodle interface; they will be timed, but textbook, notes, and Internet resources will be permitted. Since the quiz questions are based directly on the reading assignments, it is strongly recommended that students work through the self-check exercises in the text and make notes for use on the quiz.

MyProgrammingLab is an online homework system for programming classes. Every chapter of the textbook will be accompanied by problems from MyProgrammingLab. The purpose of these problems is to give rapid practice with immediate feedback on C++ syntax and concepts.

As this is a distance class, participation is even more important than in conventional courses. Participation is principally measured by the quantity and quality of posts made in the discussion forums available on Moodle; students are encouraged to ask questions in the forums and discuss possible answers amongst one another. The general expectation is that each student participates substantially in at least one discussion topic per week of class.

Required Text, Readings, and Materials

The required textbook is Starting Out with C++ Early Objects (eighth edition, with MyProgrammingLab) by Gaddis, Walters, and Muganda (ISBN-13: 978-0-13-336092-9). The student may obtain a traditional physical copy of the book or an electronic edition (available at coursesmart.com among other sites) at his or her option. The included student access code is not required, however a MyProgrammingLab access code is required for this course. This code is included with new copies of the physical book and may also be purchased standalone at myprogramminglab.com.

The MyProgrammingLab section access code (course ID) for this class is CASP-18162-WQGD-23.

Class Policies

Last Date to Audit or Withdraw: April 16th

Attendance. While there are no specific dates or times that students are required to be doing work for the class, students are expected to log in to Moodle frequently (at least every week day) in order to receive class announcements and participate in discussions. Assigned work will be due weekly; students should expect to spend a significant amount of time at least three days a week on work for this course.

Late assignments. Assignments will be accepted up to five days after their due date with a penalty of 10% credit for each day.
Syllabus emendation. The instructor reserves the right to amend this course syllabus at any time. If this occurs, an announcement will be made and the modified syllabus will be made available to the class.

Student Rights and Responsibilities

Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College student.

Chain of Command

If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head, the Dean, and lastly the Vice President for Academic Affairs.

Academic Dishonesty

Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.

Official Means of Communication

Casper College faculty and staff will employ the student’s assigned Casper College e-mail account as a primary method of communication. Students are responsible for checking their account regularly.

The instructor’s e-mail address is lenthk@caspercollege.edu and all official communications will be sent from this address.

ADA Accommodations Policy

If you need academic accommodations because of a disability, please inform the instructor as soon as possible. See him privately after class or during his office hours. To request academic accommodations, students must first consult with the college’s Disability Services Counselor located in the Gateway Building, room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.
**Course Calendar**

This calendar is very much subject to change. The topics listed will be covered but the particular weeks of coverage will very likely be different.

<table>
<thead>
<tr>
<th>Week(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chapter 1 — Computers and programming</td>
</tr>
<tr>
<td>2</td>
<td>Chapter 2 — Introduction to C++</td>
</tr>
<tr>
<td>3–4</td>
<td>Chapter 3 — Variables, data types, and expressions</td>
</tr>
<tr>
<td>5</td>
<td>Chapter 4 — Selection structures</td>
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<tr>
<td>6–7</td>
<td>Chapter 5 — Repetition structures; I/O</td>
</tr>
<tr>
<td>8–9</td>
<td>Chapter 6 — Functions</td>
</tr>
<tr>
<td>10–12</td>
<td>Chapter 7 — Classes and objects</td>
</tr>
<tr>
<td>13–15</td>
<td>Chapter 8 — Arrays and vectors; recursion</td>
</tr>
</tbody>
</table>