CS 151: Principles of Computer Science I (4)
Online
Westminster College, Summer 2018

Instructor:
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Location: Online course
Prerequisite: Any prior programming course (recommended)
Text: Absolute Java™, 6th edition, Walter Savitch, Addison Wesley 2015, ISBN: 9780134243931. Note that this textbook is bundled with an access code for the MyLab online assignment system which will be used in this course. If you buy the textbook used or without this access code, you will need to purchase a MyLab membership separately.

Objectives: The student will
• master fundamental aspects of computer programming
  – understanding variables, expressions and assignment
  – control structures and boolean logic
  – using primitive and Object data types and arrays
  – use of non-array collections (collections classes)
  – console and file input/output
• master the fundamentals of Object Oriented Programming (OOP) including
  – identifying classes, objects, and methods
  – defining classes and methods
  – employing encapsulation
  – employing inheritance and polymorphism
• use interfaces to express type relationships
• apply decomposition approaches to problem solving (top down design, for example).
• employ raising exceptions and handling exceptions effectively.
• use recursion to implement recurrence relations and as an implementation technique for solutions to some simple “divide and conquer” problems.
• identify objects and their responsibilities in a solution to a problem.
• identify and apply several object-oriented design patterns including Singleton and Decorator.
• actualize OOP techniques in the Java language and apply Java to developing software solutions to simple problems.
• write software tests (“unit tests”) and employ Test Driven Development.

Your responsibilities:
• Read ahead and understand text material.
• Complete/master the text, homeworks, labs.
• Seek help immediately if you are struggling.
• Learn the material.
• Perform substantial work outside of class.
**Important points/tips:**

- Don’t give up after reading something once, I don’t.
- Work a problem while reading the material the second or third time.
- Understand the question and your solution before you start typing! Don’t be too reluctant to start playing with possible solutions but don’t jump into it without thinking.
- If you don’t understand some technical aspect of Java, play with it in a test class for a while. Don’t be afraid to write throw-away code.

**Grading:**

Letter grades are assigned based on the percentage of the available points that you receive. The grading scale is fixed. **I do not curve.** The grading scale is as follows:

<table>
<thead>
<tr>
<th>Letter</th>
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<tbody>
<tr>
<td>A</td>
<td>[92,100]</td>
<td>A-</td>
<td>[90,92)</td>
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<tr>
<td>B+</td>
<td>(88,90)</td>
<td>B</td>
<td>(82,88)</td>
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<tr>
<td>B-</td>
<td>(80,82)</td>
<td>C+</td>
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<tr>
<td>C</td>
<td>(72,78)</td>
<td>C-</td>
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<tr>
<td>D</td>
<td>(60,70)</td>
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**Schedule:**

The course is scheduled for 6/4/2018-7/30/2018. It is designed to be somewhat self-paced but there are deadlines which give the absolute latest time that a given item may be submitted for credit. You may work ahead if material is available. As an example, Homework due dates occur approximately every three days. You may get as far ahead on the homework as you like, assuming that future homeworks are available, however you must turn in the homeworks on or before their due dates. Similarly with labs, exams and projects. I will produce these materials as quickly as I can but if you get ahead of me you may have to wait.

Please read the paragraph above again and make sure you understand it. :) No late homeworks, labs, projects or exams will be accepted! **I will not make exceptions to this policy.** If you’re planning a vacation at some point in the summer, you’ll need to work ahead to make sure you are meeting the deadlines.

All deadlines (homeworks, labs, exams, and projects) will be before the last day of “class”, 7/30/2018.

**Interactions with me (“office hours”):**

I will post an office hour schedule on D2L, our campus learning management system. During those hours I will be available on Google Hangouts (cdavidshaffer@gmail.com). If you are not available during my office hours, contact me to arrange a time to talk.

During the first few weeks of the course, I will require you to talk with me on a couple occasions. We will use that time to go through homework problems and discuss any issues you’re having.

**Lectures and other course materials:**

You will need to check D2L daily for course materials and to get updates and corrections.

Video lectures and other resources will be posted regularly. These are coordinated with graded items so you should watch all appropriate lectures and view related resources on a topic before attempting graded work on that topic.

**Homework:**

Homework will generally be due every few days and will make use of the *Pearson MyLab Programming* online homework system. Homework grading is done automatically and is generally based on correctness of output. The main purpose of homework is to provide simple exercises for you to reinforce lecture and textbook topics. If you are having trouble with homeworks, you are encouraged to seek assistance from me, classmates or friends/family that might be familiar with this topic. Homework discussions on the D2L forums are encouraged.
It is important to **struggle** on the homework as this is the only path to mastery of these topics. Relying too much on a classmate or friend for help on homeworks often leads to poor exam performance. Don’t be surprised if homework takes you a lot longer than you’d expect, given its point value. Spend the time to learn the material!

**Labs:**

This course includes a laboratory section. This is a hold-over from when the course is taught on campus. For our purposes, this lab will function just like homework. Lab assignments will be posted regularly and must be completed before their due dates. The cooperation policy with labs is the same as homework.

**Projects:**

More substantial programming problems will be given as projects. The project point values will vary but typically they are worth between 20 and 40 points each. Absolutely no cooperation is permitted on these projects. Keep your work to yourself and don’t copy or seek help from others. You are not permitted to use any person’s help or code, except help which I provide to you specifically, in completing your projects. You are not permitted to discuss your solutions to these projects with anyone else. **You are certainly permitted to ask me questions about projects!**

**Exams:**

There will be two in-semester exams during the semester taking 120 minutes each and worth approximately 100 points each. There will be a comprehensive final exam taking 150 minutes and worth approximately 150 points. When you are prepared for an exam, you will make arrangements with me **one week in advance** to take it. You will be required to find a suitable proctor (parent and/or guardian is sufficient) and I will need to meet (on google hangouts) with the proctor briefly before the exam.

All exams must be completed by their scheduled deadline. If you have not contacted me to take an exam within one week of the deadline, you will get an e-mail from me giving you one day to make the arrangements. If you haven’t made the arrangements and confirmed them with me within 24 hours of me sending that e-mail, you will receive a zero on the exam. Don’t put off exams to the last minute!

**Academic policies:**

The department of Mathematics and Computer Science has a set of guidelines regarding academic honesty which can be found at: [http://www.westminster.edu/staff/bonomojp/cheating.html](http://www.westminster.edu/staff/bonomojp/cheating.html)

Unless otherwise specified all exams and projects must be entirely individual work. “Verbal” cooperation on lab projects is encouraged but the exchange of programs or program fragments either electronically or by visual inspection is not allowed. Keep your work to yourself and don’t copy from others.

Cheating on exams, quizzes or projects will result in a grade of 0 (zero) for that item. All academic policies offenses will be referred to the college dean.

**Special note:** Special attention should be paid to the policies on projects discussed above. That is, if you violate the policies regarding projects, I will report the incident to the Dean of the college and you will receive no credit for that project. In many cases it is very easy to identify cases of cooperation so **DON’T DO IT**.

**Disabilities and special needs:** I will make any necessary, reasonable accommodations for students with disabilities. If you have a disability which requires accommodations, it is your responsibility to indicate to me that you have a disability and to discuss with me what special needs you might have regarding this class. In addition to notifying me, if you have a disability which requires class accommodations, you must make it known to Westminster College’s student affairs office so that they can send me the proper paperwork.
Westminster College actively strives for the full inclusion of all our students. Students with disabilities who require access solutions for environmental or curricular barriers should contact Corey Shaw, Director of Disability Support Services, located in 209 Thompson-Clark Hall. Phone: 724-946-7192. E-mail: shawcj@westminster.edu.