Software Development One

CMPT 220 • Spring 2014

Background

When and where

Class Tuesday and Friday afternoons 2:pm — 3:15pm in Hancock 2023
Labs on 10 Thursday afternoons 3:30pm — 4:45pm in HC 0004

Texts

Java Foundations
Thinking in Java, 3rd edition by Bruce Eckel — download
Code Complete, 2

Web

www.labouseur.com/courses/sd1

Instructor

Alan G. Labouseur
Hancock 3017
(Office hours are posted.)

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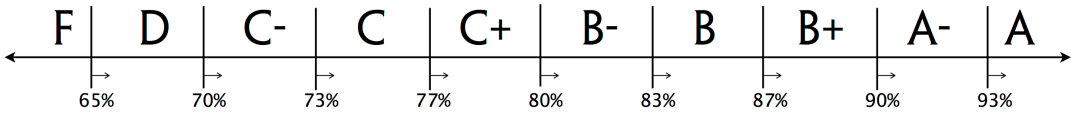
845-440-1102 *home office phone*

Grading

Letter Grades



You can earn up to 1000 points over the course of the semester, broken down as follows: (These weights are subject to minor variation.)

Projects	50.0%	500 points - 4 at 125 points each	[1, 2]
Mid-term Exam	20.0%	200 points - study sheet permitted	[1, 2]
Final Exam	20.0%	200 points - no study sheet	[1, 2]
Attendance	2.5%	25 points - for consistency	[1]
Participation	2.5%	25 points - for quality and quantity	[1]
Laziness Adjustment	2.5%	25 points - for **not** being lazy	[1]
Whining Adjustment	2.5%	25 points - for **not** whining	[1]

Objectives and Assessment

Assessment methods include assignments, quizzes, exams, discussions, presentations, peer review, and projects.

[References] refer to Department of Computing Technology Goals available at http://www.labouseur.com/courses/goals.pdf

This course continues a **disciplined approach** to the **craft of software development**. Students learn to design, develop, test, debug, and document a program with good code style. This helps to form in the student a foundation for further studies in computer science. The students will:

- come to further know software development as both art and science [1, 2]
- understand and correctly use linear data structures [1, 2]
- be able to correctly use the core tenets of Object-oriented programming [1, 2]
- believe in the nature of objects as consisting of data and methods [1, 2]
- be able to design and implement classes for problem solving [1, 2]
- enjoy declaring and manipulate arrays [1, 2]
- embrace the opportunity to develop a complex system over the course of the semester where you have to either live with your prior mistakes and shortcuts or go back and fix them. (Either will teach a valuable lesson.) [1, 2]
- revel in the practice of finding some answers for themselves, because capable problem solvers never stop learning. [1, 2]
- have fun programming... What better way to learn?

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Planned Schedule

#	Day	Date	Topic	Milestone
0	*Tuesday* *Friday*	*Jan 21* *Jan 24*	Welcome · The Plan (classes and lab, our game) · From JavaScript to Java Administrivia · Interpreted JavaScript vs. Compiled Java · Working with both	Lab 1
1	*Tuesday* *Friday*	*Jan 28* *Jan 31*	Java and JavaScript: if-else, while and for loops, variables, types, scope, input and output *No class meeting - The Board of Trustees is taking over our room.*	Lab 2
2	*Tuesday* *Friday*	*Feb 4* *Feb 7*	Java and JavaScript: Game Loop vs. the Event Model · Arrays of one and two dimensions Java and JavaScript: Classes and Objects · Software Development Best Practices	Lab 3
3	*Tuesday* *Friday*	*Feb 11* *Feb 14*	Java and JavaScript: Finish rudimentary demo game for both platforms Java: Inheritance, Encapsulation, Polymorphism · Software Development Best Practices	**Project 1** (JavaScript)
4	*Tuesday* *Friday*	*Feb 18* *Feb 21*	Discuss Project 1 · Java: Exceptions and handling them · Software Dev Best Practices Linked Lists in theory · Asymptotic performance concepts and *O*-notation	Lab 4
5	*Tuesday* *Friday*	*Feb 25* *Feb 28*	Java: Linked Lists in practice – game navigation & inventory · Traversing arrays and lists Java: File input and output · Arrays and Linked Lists of magic items in the game	Lab 5
6	*Tuesday* *Friday*	*Mar 4* *Mar 7*	Java: *Magick Shoppe* - Linear searching for magic items in arrays and lists · *O* analysis Catch up · Review for the Mid-term exam · Software Development Best Practices	Lab 6
7	*Tuesday* *Friday*	*Mar 11* *Mar 14*	**Mid-term Exam** part one - A one-page study sheet is permitted. Some restrictions apply. **Mid-term Exam** part two - A one-page study sheet is permitted. Some restrictions apply.	**Project 2** (Java)
8	*Tuesday* *Friday*	*Mar 18* *Mar 21*	*No class meeting - Spring Break* *No class meeting - Spring Break*	—
9	*Tuesday* *Friday*	*Mar 25* *Mar 28*	Review Mid-term exam · Discuss the plan for the rest of the semester · Linking objects *DELAYED START: 2:30pm* Discuss Project 2 · Sorting in theory and practice	—
A	*Tuesday* *Friday*	*Apr 1* *Apr 4*	Java: Selection Sort – sorting magic items Binary Search in theory and practice · Asymptotic characterization with *O*-notation	Lab 7
B	*Tuesday* *Friday*	*Apr 8* *Apr 11*	*No class meeting - Faculty Assessment Day* *No class meeting - There's a business plan competition in our room.*	**Project 3** Lab 8
C	*Tuesday* *Friday*	*Apr 15* *Apr 18*	Discuss Project 3 · From Linked Lists to Stacks and Queues and Trees (Oh my!) *No class meeting - Easter Break*	—
D	*Tuesday* *Friday*	*Apr 22* *Apr 25*	The Stack and Queue data structures in theory and practice Trees in practice – Binary Search Trees (magic items in the game)	—
E	*Tuesday* *Friday*	*Apr 29* *May 2*	Putting it all together: code quality, modularization, and more. *No class meeting - The Board of Trustees is taking over our room.*	Lab 9
F	*Tuesday* *Friday*	*May 6* *May 9*	Review everything for the Final Exam *No class meeting, study for the final exam.*	**Project 4** Lab 10
G	*Monday*	*May 12*	**Comprehensive Final Exam** at 1pm - No study sheets. Just you. And a pencil.	—