CSCI 121: Computer Science II

Syllabus – Spring 2009

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Course Description

This course is a continuation of Computer Science I with emphasis on data and procedural abstraction. The major themes for the course are programming in the object-oriented paradigm, a detailed study of classic linear data structures, and recursion.

Course Goals

Upon completion of this course, a successful student will be able to:

- implement complete programs in Java using appropriate object-oriented style.

- demonstrate the correctness of a class by implementing unit tests.

- select the appropriate linear data structure for a given task.

- design small to mid-sized software applications using OO techniques including polymorphism.

Required Text

In addition to the following required text, supplementary readings will be given periodically during the semester.

- *Head First Java, 2nd Edition* by Kathy Sierra and Bert Bates.

You should expect to spend about an hour before each class session working through the readings. This means reading the text for detail, studying the syntax for new language features, and working to learn vocabulary – not just skimming through the material before class.

Graded Material

- **Homework** – The purpose of homework problems is for you to explore the current topic more deeply and to practice using new language features. Homework problems will be assign nearly every class and will be due the next class session.

- **Programming Projects** – Two programming projects will be assigned during the semester. For these assignments you will have to develop complete programs to solve a problem. The programs will incorporate material from a number of units in the course and will require significant time to complete.

- **Labs** – Each Thursday session will be held in the Computer Science Computer lab, PPHAC 114. During the lab, you will be given as series of activities to complete, individually or with a partner, depending on the lab.

- **Tests** – Two tests will be given during the semester on Friday, February 27 and Wednesday, April 22.

- **Final** – The final will be cumulative and will be given in-class on Wednesday, May 6 starting at 8:30 a.m. Any change to the final exam schedule must be approved by both me and the dean of students.

Grade Determination

- 30% – Homework

- 20% – Programming Projects

- 20% – Labs

- 20% – Tests

- 10% – Final

All grades will be calculated on the standard scale using pluses and minuses.

Responsibilities

Your attendance is expected at each class meeting. You are also responsible for the contents of reading assignments, handouts, class activities, and class email.

If you have a disability that may affect your participation in this course, please contact me immediately to discuss academic accommodations.

Academic Honesty

Except on tests, you are encouraged to discuss the material and work with other students in the course. Specifically, on homework, programming projects, and labs you may discuss any portion of the assignment with your fellow students. This policy does not allow you to copy another student's work verbatim – you must produce your own code or write-up of the material. Work together to learn the concepts, but keep in mind that you are ultimately responsible for the material on the tests.

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Spring 2009 Schedule

Date	Reading(s)	Topic(s)
M Jan 19		• Day 1
W Jan 21	• Chapter 1	• Basic Control Structures
F Jan 23	• Chapter 2	• OO Theory and Basic Objects
M Jan 26	• Chapter 3	• Variables, References, and Arrays
W Jan 28	• Chapter 4	• Methods and Object State
F Jan 30	• Chapter 9: 235-249	• Stack, Heap, and Constructors
M Feb 2	• Chapter 9: 258-271	• Object Death and the Garbage Collector
W Feb 4		• Object Wrap-Up
F Feb 6	• Chapter 5: 95-103	• Testing
M Feb 9	• Chapter 5: 104-123	• `for` Loops and Program Design
W Feb 11	• Chapter 6: 125-139	• ArraysLists
F Feb 13		• Linked Lists
M Feb 16		• Linked List Insertions
W Feb 18		• Linked List Deletions
F Feb 20	• Handout	• Big-Oh Notation
M Feb 23		• List Efficiency
W Feb 25		• List Efficiency
F Feb 27		• Test #1
M Mar 1 – F Mar 6		• Spring Break
M Mar 9	• Chapter 6: 140-154	• Using Libraries
W Mar 11	• Chapter 6: 155-164	• Imports and Library Documentation
F Mar 13	• Chapter 7: 165-182	• Inheritance
M Mar 16	• Chapter 9: 250-257	• Constructors and Inheritance
W Mar 18	• Chapter 7: 183-190	• Polymorphism
F Mar 20	• Chapter 7: 191-196	• Overloading
M Mar 23	• Chapter 8: 197-206	• Abstract Base Classes
W Mar 25	• Chapter 8: 207-223	• `Object` and Multiple Inheritance
F Mar 27	• Chapter 8: 225-234	• Interfaces
M Mar 30		• OO Wrap-Up

Date	Reading(s)	Topic(s)
W Apr 1	• Chapter 10: 273-286	• `static` and `final`
F Apr 3	• Chapter 10: 287-293	• Wrapping Primitives and Auto-Boxing
M Apr 6	• Chapter 11: 315-329	• Exceptions
W Apr 8	• Chapter 11: 330-338	• More Exceptions
F Apr 10 – M Apr 13		• Easter Break
W Apr 14	• Chapter 16: 5229-535	• Collections
F Apr 17	• Chapter 16: 536-555	• Generics
M Apr 20	• Chapter 16: 556-579	• More Containers
W Apr 22		• Test #2
F Apr 24	• Online Source	• Recursion
M Apr 27		• Recursion
W Apr 29		• Recursion
F May 1		• Review