

CSCI 145 OUTLINE

JAVA LANGUAGE AND OBJECT ORIENTED DEVELOPMENT

TEXT: Java Concepts by Cay Horstmann 6th ED John Wiley

Approved: OCTOBER 2012

Effective: SPRING 2013

MATERIAL TO BE COVERED	SECTIONS FROM TEXT	TIME LINE
Computer Systems: basic computer architecture, software, hardware and networks, history of computing and programming, a first Java program, compilation, types of errors.	1.1 - 1.8	1.75 Hours
Using Objects: types, variables, introduction to objects, string literals, defining and testing a class, creating objects, constructors, methods, accessor and mutator, the API documentation, a frame window, graphical shapes, drawing on a component, text, color	2.1 - 2.13	3.25 Hours
Implementing classes: instance variable, encapsulation, the public interface of a class, commenting, providing the class implementation, unit testing	3.1 - 3.9	2.5 Hours
Fundamental data types: number types, assignment, arithmetic and mathematical functions, calling static methods, type conversion, strings, reading, input and characters.	4.1 - 4.6	3.5 Hours
Decision and Iterations: if statement, comparing values, multiple alternatives, repetition (while, for), nested loops, processing input, random numbers and simulation, code coverage, the debugger	5.1 - 5.5 6.1 - 6.6	3.75 Hours
Array Lists and Arrays: storing numbers in array lists, declaring and accessing arrays, copying arrays, two dimensional arrays	7.1 - 7.8	2.5 Hours
Designing Classes: cohesion and coupling, immutable classes, side effects, preconditions, postconditions, static variables and methods, scope, packages	8.1 - 8.10	3.75 Hours
Interfaces and Polymorphism: developing reusable software, converting between types, polymorphism, using a strategy interface for improving reusability, inner classes, mock objects. Event Handling: events, eventlisteners and event sources, applications with buttons, mouse events, timer events	9.1 - 9.11	3.5 Hours
Inheritance: inheritance hierarchies, inheriting instance fields and methods, overriding methods, subclass construction, converting from subclasses to superclasses, polymorphism and inheritance, the top "Object", using inheritance to customize frames	10.1 - 10.8	3.5 Hours
Reading/writing text files, throwing exceptions, checked and unchecked exceptions, exception handling: catch and finally. The Exception class hierarchy.	11.1 - 11.8	5 Hours
Software engineering: software life cycle, discovering classes, relationships between classes, examples.	12.1 - 12.5	1.25 Hours
Recursion, recursive thinking, recursive helper methods, efficiency of recursion vs. iteration, permutations. Graphical user interfaces: text areas, processing text input, layout management, GUI design choices, menus, exploring the swing documentation	13.1 - 13.5 & 18.1 - 18.6	3.75 Hours
Sorting and searching: selection and merge sort, binary search. Introduction to data structures: ADT, linked lists, stacks, queues.	14.1 - 14.8 & 15.1 - 15.4	2 Hours

*** 1 Hours = 1 hour of face time. ****This outline allows for 3 hours exams.

16 Week Term: 1 week = 2.8333 hours (face time) 6 Week Term: 1 week = 7.5 hours (face time)

Submitted by : Pop

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