

CSCI 145 OUTLINE

JAVA LANGUAGE AND OBJECT ORIENTED PROGRAMMING

TEXT: Computing Concept with Java Essentials 4th Edition Horstmann

Approved:

Effective: FALL 2007

MATERIAL TO BE COVERED	SECTIONS FROM TEXT	TIME LINE
Computer System: basic computer architecture, software, hardware and networks, history of computing and programming, a Java program, compilation, types of errors.	1.1 - 1.8	1.25 Hours
Objects and Classes: introduction to objects, string literals, defining and testing a class, creating objects, instance fields, constructors, methods, designing the public interface of a class, commenting, variable types, the "this" reference.	2.1 - 2.10 & 3.1 - 3.8	3.75 Hours
Fundamental Data Types: number types, assignment, arithmetic and mathematical functions, calling static methods, type conversion, strings, reading, input and characters.	4.1 - 4.10	2.5 Hours
Graphics: short introduction to HTML, a frame window, graphical shapes, color, fonts, reading text input. OPTIONAL: a simple applet.	5.1 - 5.7	2.5 Hours
Decision and Iterations: if statement, comparing values, multiple alternatives, repetition (while, for), nested loops, processing input, random numbers and simulation.	6.1 - 6.4 & 7.1 - 7.5	3.75 Hours
Array Lists and Arrays: storing numbers in array lists, declaring and accessing arrays, copying arrays, two dimensional arrays.	8.1 - 8.7	2.5 Hours
Designing Classes: instance data, encapsulation, parameters, constructors, scope, object relationships, overloading, accessor and mutator methods, static variables and methods, packages.	9.1 - 9.9	3.75 Hours
Testing and Debugging: unit tests, test case evaluation, regression testing and test coverage, program traces, logging and assertions, the debugger.	10.1 - 10.7	1.25 Hours
Interfaces and Polymorphism: developing reusable software, converting between types, polymorphism, using a strategy interface for improving reusability, processing timer events.	11.1 - 11.7	2.5 Hours
Event Handling: events, event listeners and event sources, processing mouse input, processing text input, multiples buttons, fram windows, text components.	12.1 - 12.4	2.5 Hours
Inheritance: inheritance hierarchies, inheriting instance fields and methods, subclass construction, converting from subclasses to superclasses, access control, the top "Object."	13.1 - 13.8	2.5 Hours
Graphical User Interfaces: Java GUI overview, containers, GUI components, layout management, using interfaces to customize frames, GUI design choices, menus, exploring the swing documentation.	14.1 - 14.6	2.5 Hours

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Exceptions and I/O Streams: error handling techniques, basics of Java exception handling (try, throw, catch and finally), exception propagation, the Exception class hierarchy, streams readers and writers (character streams, byte streams, data stream and processing streams), standard I/O, file I/O, random access, threads*	15.1 - 15.6 & 16.1 - 16.5	5 Hours
Software Engineering: software development models, software life cycle, relationships between classes, examples.	17.1 - 17.5	1.25 Hours
Ecursion, Sorting and Searching: recursive thinking, recursive helper methods, efficiency of recursion vs. iteration, selection sort, binary search, permutations.	18.1 - 18.5 & 19.1 - 19.7	1.25 Hours
Data Structures: linked lists, stacks, queues.	20.1 - 20.22	1.25 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