OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN JAVA CS 1A

Winter 2017 SCHEDULE

This handout contains the tentative schedule for CS1A. Depending on how quickly we're able to make it through the material; we may end up spending more or less time on each of these topics. Textbook chapter references are for the 10th edition of the text.

Every week you have one lesson, or Module, to study, one Lab, and one programming Assignment to turn in. To pass it you have to make time to do both of these activities.

Weekly Time Estimate

- Module Reading - about 3 hours. This includes pasting code into your compiler and trying it out.
- Lab and Programming Assignment - about 6 - 10 hours. This varies greatly with individuals. Some students take one hour, some take 15 hours.

WEEK/ DAYS	TOPICS	READING ASSIGNMENTS	ASSIGNMENT / LABS
Week 1 1/9 - 1/15	Welcome to the class! Compiler - Eclipse LESSON 1: INTRODUCTION TO JAVA ▪ Introduction ▪ Programming languages ▪ The java language specification, API, JDK, and IDE ▪ A simple java program ▪ Creating, Compiling, and Executing a Java Program ▪ Programming Style and Documentation ▪ Syntax errors and runtime errors ▪ Developing Java Programs Using Eclipse	1. Read the course syllabus carefully. 2. Downloading Java and Eclipse 3. Readings: Liang, sections 1.1 - 1.12	Lab Exercise 1 Programming Assignment 1 due Wednesday, January 18th.
Week 2 1/16 - 1/22	LESSON 2: Expressions And Variables ▪ Elementary Programming ▪ Reading Input from the Console ▪ Variables & identifiers ▪ Assignment statements	Liang, sections 2.1 - 2.15	Lab Exercise 2 Programming Assignment 2 due Wednesday, January 25th

	▪ Named Constants ▪ Numeric data types (Integer types: byte, short, int, long; Floating Point types: float, double) ▪ Numeric operations & order of operations ▪ Increment and Decrement Operators		
Week 3 1/23 - 1/29	LESSON 3: SELECTION CONTROL STRUCTURES ▪ Boolean Data Type ▪ Selection (if Statement) ▪ Two-Way if-else Statements ▪ Nested if and Multi-Way if-else Statements ▪ Logical Operators ▪ switch Statements ▪ Conditional Expressions ▪ The switch statement	Liang, sections 3.1 - 3.14	Lab Exercise 3 Programming Assignment 3 due Wednesday, February 1st.
Week 4 1/30 - 2/5	LESSON 4: MATHEMATICAL FUNCTIONS, CHARACTERS, AND STRINGS ▪ Mathematical Functions ▪ Character Data Type and Operations ▪ Scanner class ▪ The String Type ▪ Formatting Console Output ▪ String manipulation ▪ String-numeric conversion ▪ introduction to GUI programming in Java (JOptionPane)	Liang, sections 4.1 - 4.6	Lab Exercise 4 Programming Assignment 4 due Wednesday, February 8th.
Week 5 2/6 - 2/12	LESSON 5: LOOPS ▪ The while Loop ▪ The do-while Loop ▪ The for Loop ▪ Which Loop to Use? ▪ Nested Loops	Liang, sections 5.1 - 5.9	Lab Exercise 5 Programming Assignment 5 due Wednesday, February 15th

Week 6 2/13- 2/19	LESSON 6: ▪ Defining a Method ▪ Calling a Method ▪ void Method Example ▪ Passing Arguments by Values ▪ Returning a value from a method ▪ Overloading Methods ▪ The Scope of Variables ▪ Statics class variables vs. local variables Midterm Exam Review	Liang, sections 6.1 - 6.9	Lab Exercise 6 Programming Assignment 6 due Wednesday, February 22nd .
Week 7 2/20 - 2/26	Midterm Exam LESSON 7: OOP PROGRAMMING - OBJECTS AND CLASSES ▪ Defining Classes for Objects ▪ Constructing Objects Using Constructors ▪ Accessing Objects via Reference Variables ▪ Using Classes from the Java Library	Liang, sections 9.1 – 9-6	Lab Exercise 7 Programming Assignment 7 due Wednesday, March 1st.
Week 8 2/27 - 3/5	LESSON 8: OOP PROGRAMMING - OBJECTS AND CLASSES (continued) ▪ Static Variables, Constants, and Methods ▪ Passing Objects to Methods ▪ Array of Objects and objects containing arrays ▪ Immutable Objects and Classes ▪ The Scope of Variables ▪ The this Reference	Liang, sections 9.7 – 9-14	Programming Assignment 8 due Wednesday, March 8th.
Week 9 3/6 – 3/12	LESSON 9: SINGLE-DIMENSIONAL ARRAYS ▪ Creating arrays ▪ Array size & default values ▪ Array index notation	Liang, sections 7.1 – 7.9	Lab Exercise 8 Programming Assignment 9 due Wednesday, March 22nd

	▪ Processing arrays ▪ The "for-each" loop ▪ Passing Arrays to Methods ▪ Returning an Array from a Method		
Week 10 3/13 -3/19	LESSON 10: Designing, Implementing and Testing Algorithms ▪ Searching Arrays ▪ Sorting Arrays	Liang, sections 7.10 – 7.11	Lab Exercise 9
Week 11 3/20 - 3/26	LESSON 11: GUI Design • GUI Design Final Exam Review		
Week 12 3/27 - 3/31	The Final exam - Monday, March 27th, 2017		No late assignments accepted after March 24th 11:59 PM.

Assignments Due dates

Assignments	Topic	Due Date
Programming Assignment 1	Getting Started - Hello World - Java style rules	1/18/2017
Programming Assignment 2	Expressions and Variables	1/25//2017
Programming Assignment 3	Selection Control Structures	2/1/2017
Programming Assignment 4	Mathematical Functions, Characters, and Strings	2/8/2017
Programming Assignment 5	Loops	2/15/2017
Programming Assignment 6	Methods	2/22/2017
Midterm (20%)	Coverage: Chapters 1-5 (200 points) The midterm exam covers the material up to Loops, which we should finish by Monday, November 1st.	2/20/2017
Programming Assignment 7	Classes and Objects	3/1/2017
Programming Assignment 8	Classes and Objects	3/8/2017
Programming Assignment 9	Single-Dimensional Arrays	3/22/2017
Final Exam (20%)	Comprehensive Exam (200 points)	3/27/2017