95-807, Object-Oriented Programming with Java

Text Books

Two texts are used, one for lecture and one for "lab". The lab book is Deitel's Simply Java Programming. The text for lecture is Eckel's Thinking in Java 3rd Edition. You do not have to buy Eckel since it is online, in fact, you may prefer one or more other texts to accompany the lecture. See below.


Today you have many choices of outstanding Java text books. I encourage you to peruse some and use more than a single text. I encourage you to use multiple sources -- your best source will be online, especially Sun's Javasoft website. The lecture topics follow closely with the outline in Eckel, however, you will invariably need to read out of sequence to get the information you need.

How Homeworks are Submitted

Homeworks are submitted in a zip file to the Bb digital dropbox. The naming conventions and directory structures are described in the first homework.

Homework Grading

There is no penalty for submitting your assignment in advance. Late assignments will lose 10% of the grade per 24 hour period. No exception will be made. On the other hand, the 2 lowest assignment grades will be dropped at the end of the semester in calculating your final grade. This will help you in the case of unscheduled events that prevent you from submitting your homework in time.

Each homework is accompanied by grading guideline. Grading disputes are highly discouraged because they distract from learning attention and time for both the students and the instructors.

The TAs will not be responsible for looking for multiple submissions of your homework in your inbox. Design a system for yourself where you can re-submit unambiguously.
Course Point Distribution

Homework: individual submittals for coding: 30%
Homework: forum participation: 20%
Homework: group project: 20%
Midterm: 10%
Final: 20%

Bb Forums used for homework help

If the nature of your home question/answer is of interest to the entire class, you are encouraged post your question to the Bb homework discussion board. You earn bonus credit toward your forum participation grade when you answer a question of your fellow student. When you answer a question, everybody wins: you learn, your peer learns and the teacher can do other tasks (!-) On the other hand, to get help on an assignment do not hesitate sending the TA or myself an email. Just remember to check the bulletin board to make sure that your question was not already asked and answered.

Bb Forums used for Software Management Topics

Bb forums are used for the Software Management topics. The objective is to teach you about common technologies, to share up-to-date data and to tell "real work" stories/examples. An instructor might "seed" the forum by posting a question or discussion point.

Another objective is to do web research that is fairly referenced. Every contributing article must be referenced (a URL is fine). Your posting must be original text; no cloning. You will not get credit for text that is either cloned, not your own work, or unreferenced. I have found the best way to be original is to close your research articles while you are writing. It is your responsibility to understand plagiarism; avoidance tips are in http://www.aug.edu/sociology/plagiarism.html.

These posting contribute to the forum participation part of your grade. You get credit for a reply post, or you can begin a new post within the same topic. For a properly referenced, non-trivial post you will get 1 point, if it is outstanding you will get 2 points. For each week's topic you will get no more than 2 points. Note that you can also put points in this bucket by answering a peer student's questions on the homework forums. Maximum 20 Forum Participation points for the course.

Week 1: January 3, 2005

- Topics: Object-oriented programming overview, definitions of OO programming, polymorphism, composition and inheritance.
- Don't miss: "New to Java" in the Sun Developer's site at http://www.java.com/en/developers/
- Recommended reading: Deitel sections 1.1 thru 1.9
- Homework 1: Your Coding Environment due Thursday Jan 6 midnight EST.
• Software Management forum: your background.
• JavaLecture1.ppt (power point slideset) Not covered: Administrative details [slide 1-17], the Together IDE tool [slide 50-end]
• Lecture reading (optional): Core Java, Eckel Chapters 1 and 2

Week 2: January 10, 2005

• Topics: JDK overview. Writing and running a Java program. Program control, data types, variables, operators.
• Recommended Reading: Deitel Chapter 1
• Homework 2: Compiling and Running your first java app; due Jan 13.
• Software Management forum: J2SE vs. J2EE
• lecture: ProgramControl.ppt Not covered: the Random Number generators [slide 29-end]
• Lecture reading (optional): Eckel Chapter 3

Week 3: January 17, 2005

• Topics: Initialization (constructors) & Cleanup (garbage collection). The default constructor, static, member initialization, arrays, array initialization and arrays of strings.
• Homework 3 due Jan 20
• SimpleInput utility <<<irene check>>>
• Software Management forum: J2EE vs. Microsoft .NET
• Lecture : InitAndCleanup.ppt Not covered: varargs [slides 28-29], multi-dimension arrays [slide 31-32], recursion [slides 43-46].
• Lecture reading Eckel Chapter 4

Week 4: January 24, 2005

• Topics: packages, access specifiers, composition, inheritance, more on constructors, finals, class loading, accessor/mutator (getter/setter) methods.
• Homework 4: due Jan 27
• Software Management forum: JavaScript vs. JSP vs. Java
• lecture AccessAndReuse.ppt Not covered: NameNumber example with binary tree [slides 13-28]
• Lecture reading Eckel Chapter 4 and 5

Week 5: January 31, 2005

• Topics: Upcasting, method-call binding, polymorphism, downcasting, the Object class, object wrappers.
• Homework 5: due Feb 3
• Software Management forum: Application/Database Connectivity
• lecture Polymorphism.ppt Not covered: the Class class and inspection [slides 40-end]
• Lecture reading Eckel Chapter 4 and 5

Week 6: February 7, 2005

• Topics: Interfaces and simulating multiple inheritance
• Homework 6: due Feb 10
• Software Management forum: JDBC, ODBC and ADO .NET
• lecture InterfacesAndInnerClasses.ppt For inner classes [slides 28-39] know only the definition. De-emphasize Events [slides 40-end]
• Lecture reading Eckel Chapter 6

Week February 14: Midterm

• Midterm exam -- online -- available Friday Feb 11 8a, until Thurs Feb 17 midnight

Week 7: February 21, 2005

• Topics: More on arrays; Java Collection classes (containers)
• Homework 7 due Thurs Feb 24
• Web Application Servers
• Software Management forum: Application Frameworks and Application Servers.

Week 8: February 28, 2005

• Topics: ArrayList
• Homework 8: due March 3
• Software Management forum: Application Frameworks and Application Servers, cont.
• lecture: MoreOnContainers.ppt Not covered: RTTI, de-emphasize [slides 30-end]. Emphasize the ArrayList class.

Week of March 7: CMU Spring Break

• CMU Spring Break March 7 to 11, 2005

Week 9: March 14, 2005

• Topics: Java I/O and Exceptions
• Homework 9 due Thur Mar 17
• Software Management forum: Java IDEs
• lecture : Exceptions-IO.ppt De-emphasize [slides25-40]. Emphasize basics of Exception and RuntimeException classes. Emphasize IO for System.out & System.in only
• lecture : I-O-RTTI.ppt Not covered

Week 10: March 21, 2005

• Group Project -- Initialization
• Homework due Thru Mar 17: Group project, the big picture and plan
• no Software Management topic

Week of March 28

• There will be no new material this week <<verify GM vacation days>>

Week 10 continued: April 4, 2005

• Topics: Applets & Swing:
• Group project -- client/GUI
• Homework due Thru Apr 7: Group project status drop for GUIs
• Software Management forum: OO design using CRCs
• lecture: Apps-Applets.ppt Applets overview only [slides 1-14]. Emphasize Swing [slides 15-end]

Week 11: April 11, 2005

• Topics: JDBC
• Homework due Thru Apr 14: individual hw on JDBC
• Software Management forum: databases
• lecture JavaDbAndMore.ppt Not Covered: Threads [slides 1-15]. Emphasize JDBC [slides 16-end]

Week 12: April 18, 2005

• Topics: Java Performance
• Software Management forum: Java performance and performance tools
• Homework due Thru Apr 21: Group project status drop for backend

Week 12 continued: April 25, 2005

• Topics: Java Debug
• no Software Management forum
• Homework : due Thrs Apr 28: Group project submittal

April 29: CMU last day of class
May 2 thru May 6: Final Exam

- Final exam -- proctored