

CS 120: Computer Science II  
Marshall University, Fall 2005

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## 1 Course Description

In this course, the students will learn agile modeling with Unified Modeling Language (UML); eXtreme Programming (XP) principles and practice; event driven programming for developing graphical user interface (GUI) applications, and exception handling; and principles and practices of test-driven development (TDD).

## 2 Instructors' Information

This is team-taught by professors Gudivada and Fuller. Contact information:

- Venkat N. Gudivada, Gullickson Hall Room 205A, Phone: 304-696-5452, Email: gudivada@marshall.edu.  
Office hours: MW 12.00 Noon - 1.00 PM, 2.00 PM - 4.00 PM; Friday: 12.00 Noon - 1.00 PM
- Joe Fuller, Gullickson Hall Room 205B, Phone: 304-696-6204, Email: fullerj@marshall.edu.  
Office hours: Mondays and Wednesdays: 8.30 AM - 9.00 AM and 10.00 AM - 11.00 AM; Thursday: 8.30 AM - 12.00 Noon and 1.00 PM - 2.00 PM; Friday: 8.30 AM - 9.00 AM, 10.00 AM - 11.00 AM, 1.00 PM - 2.00 PM.

## 3 Course Topics at a Glance

1. Review of getting started with Java, introduction to Java programming, working with numeric data, control structures, and input data validation.
2. Defining, implementing, and using classes; inheritance; interfaces; and object-oriented programming (OOP).
3. Working with arrays, collections and generics, dates and strings, exception handling, and threads.
4. GUI programming with Swing, GUI controls and layout managers, event handling and data validation.
5. Applet programming, and working with text and binary files.
6. Preview of XML and JDBC programming.

## 4 Schedule of Teaching and Learning Activities

**Week 1: 22, 24, 26 – Aug – 2005**

### In-Class Activities

- Discuss course syllabus — teaching and learning goals, student and instructor expectations, plagiarism and attendance policies, assessment methods and grading criteria.

- Discuss access issues related to: WebCT Vista, online teaching and learning resources, and library support.
- Review getting started with Java — editors, command-line based compiling and execution, using J2SE documentation, and IDEs.
- Review introduction to Java programming.
- Assignment No: 1 walk-through.
- Assignment No: 2 walk-through.
- Next out-of-class activities walk-through.

### **Out-of-Class Activities**

- Study slides related to getting started with Java, and introduction to Java programming.
- Work on assignment numbers 1 and 2, and submit them via WebCT Vista.

### **Week 2: 29, 31 – Aug – 2005; 2 – Sep – 2005**

#### **In-Class Activities**

- Review Java primitive data types, variables, constants, assignment statements, operators and precedence, type casting, NumberFormat class, MATH class, and BigDecimal class.
- Reflect on working with numeric data.
- Review Java Boolean expressions, if/else and switch statements, loops, break and continue statements, and static methods.
- Reflect on Java control structures.
- Assignment No: 3 walk-through.
- Assignment No: 4 walk-through.
- Next out-of-class activities walk-through.

#### **Out-of-Class Activities**

- Study slides related to working with numeric data and control structures.
- Work on assignment numbers 3 and 4, and submit them via WebCT Vista.

### **Week 3: 7, 9 – Sep – 2005**

#### **In-Class Activities**

- Provide preliminary exposure to exception handling and data validation.
- Assignment No: 5 walk-through.
- Next out-of-class activities walk-through.

#### **Out-of-Class Activities**

- Study slides related to exception handling and data validation.
- Reflect on exception handling and data validation.
- Work on assignment number 5, and submit it via WebCT Vista.

### **Week 4: 12, 14, 16 – Sep – 2005**

#### **In-Class Activities**

- Discuss Java class anatomy — constructors and method overloading, and instance vs. static fields and methods.
- Introduce UML class diagrams using BlueJ.
- Reflect on class structure and behavior.
- Assignment No: 6 walk-through.
- Next out-of-class activities walk-through.

#### **Out-of-Class Activities**

- Study slides related to class concepts.
- Work on assignment number 6, and submit it via WebCT Vista.

### **Week 5: 19, 21, 23 – Sep – 2005**

#### **In-Class Activities**

- Continue discussion on developing Java classes.
- Reflect on Java class development.
- Assignment No: 7 walk-through.
- Next out-of-class activities walk-through.

### **Out-of-Class Activities**

- Study slides related to Java class concepts.
- Work on assignment number 7, and submit it via WebCT Vista.

### **Week 6: 26, 28, 30 – Sep – 2005**

#### **In-Class Activities**

- Discuss class inheritance and polymorphism.
- Reflect on Java class inheritance and polymorphism.
- Assignment No: 8 walk-through.
- Next out-of-class activities walk-through.

### **Out-of-Class Activities**

- Study slides related to inheritance and polymorphism.
- Work on assignment number 8, and submit it via WebCT Vista.

### **Week 7: 3, 5, 7 – Oct – 2005**

#### **In-Class Activities**

- Continue discussion on class inheritance and polymorphism.
- Reflect on Java class inheritance and polymorphism.
- Assignment No: 9 walk-through.
- Next out-of-class activities walk-through.

### **Out-of-Class Activities**

- Study slides related to class concepts.
- Work on assignment number 9, and submit it via WebCT Vista.

### **Week 8: 10, 12, 14 – Oct – 2005**

#### **In-Class Activities**

- Discuss interface concepts.
- Illustrate programming with interfaces.
- Introduce important interfaces in Java
- Reflect on interfaces and their implementation.

- Assignment No: 10 walk-through.
- Next out-of-class activities walk-through.

### **Out-of-Class Activities**

- Study slides related to interfaces.
- Work on assignment number 10, and submit it via WebCT Vista.

### **Week 9: 17, 19, 21 – Oct – 2005**

#### **In-Class Activities**

- Discuss one-dimensional and two-dimensional array concepts.
- Illustrate programming with arrays.
- Introduce Arrays class and System.arraycopy() method
- Reflect on array concepts and Arrays class.
- Assignment No: 11 walk-through.
- Next out-of-class activities walk-through.

#### **Out-of-Class Activities**

- Work on assignment number 11, and submit it via WebCT Vista.

### **Week 10: 24, 26, 28 – Oct – 2005**

#### **In-Class Activities**

- Discuss Java package concept, and documenting Java classes using javadoc tool.
- Discuss enumerations, inner and static inner classes, local classes and static imports.
- Introduce programming with ArrayList class.
- Reflect on packages, javadoc, inner classes, and ArrayList.
- Assignment No: 12 walk-through.
- Next out-of-class activities walk-through.

#### **Out-of-Class Activities**

- Work on completing programming part of the midterm exam.
- Complete and submit assignment no: 12 via WebCT Vista.

## **Week 11: 31 – Oct – 2005; 2, 4 – Nov – 2005**

### **In-Class Activities**

- Discuss Java collection classes — ArrayList, LinkedList, queue, hash map, and tree maps.
- Explain how to wrap untyped collections.
- Reflect on collection classes.
- Assignment No: 13 walk-through.
- Next out-of-class activities walk-through.

### **Out-of-Class Activities**

- Work on assignment number 13, and submit it via WebCT Vista.

## **Week 12: 7, 9, 11 – Nov – 2005**

### **In-Class Activities**

- Discuss Java classes related to representing and manipulating dates and strings.
- Revisit exception handling.
- Reflect on classes related to dates, strings, and exception handling.
- Assignment No: 14 walk-through.
- Next out-of-class activities walk-through.

### **Out-of-Class Activities**

- Work on assignment number 14, and submit it via WebCT Vista.

## **Week 13: 14, 16, 18 – Nov – 2005**

### **In-Class Activities**

- Discuss Swing and graphical user interface (GUI) programming: JFrame, JPanel, FlowLayout and BorderLayout managers, and ActionListener interface.
- Illustrate developing GUI applications and applets using various controls.
- Reflect on class GUI programming.

### **Out-of-Class Activities**

- Enjoy your Thanksgiving holiday break.

## Week 14: 28, 30 – Nov – 2005; 2 – Dec – 2005

### In-Class Activities

- Discuss basic concepts of sorting and searching.
- Preview XML concepts.
- Final exam review.

### Out-of-Class Activities

- Work on sorting and searching assignment (no: 15) and submit it via WebCT Vista.

## Week 15: 5 – Dec – 2005

### In-Class Activities

- Reflect on the course.
- Perform course evaluation.

### Out-of-Class Activities

- Prepare for the final exam.
- Answer final exam on 13 – Dec – 2005 (Tuesday), 10.15 AM – 12.15 PM in GH 206A.

## 5 Course Assessment

The course assessment components include: assignments (20%), programming projects (30%), two midterm exams (30%), and a final (20%). Maximum possible score is 100. Course grade is awarded based on the following scheme:

<i>Score</i>	<i>Letter Grade</i>
$\geq 90$	A
$\geq 80 \ \& \ < 90$	B
$\geq 70 \ \& \ < 80$	C
$\geq 60 \ \& \ < 70$	D
$< 60$	F

## 6 Instructional Materials

**Required Textbook** Cay Horstman, *Computing Concepts with Java Essentials* (3<sup>rd</sup> edition), ISBN: 0-471-24371-x, John Wiley, 2003.

**Additional Resources** Course notes and other handouts will be available on WebCT Vista. URLs for additional resources will also be listed on the Vista.

## 7 WebCT Vista

It is important to visit WebCT Vista for up-to-date information about the course. It hosts all the course materials including quizzes, handouts, lecture notes, and reading materials. Also, you will use the Vista for submitting your quizzes and programming projects.