

# COP 4331 – OBJECT - ORIENTED DESIGN AND PROGRAMMING

- Fall 2008 -

## Instructor

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## Prerequisites

COP 3530, Data Structures and Algorithms Analysis

## Textbook (Required)

Cay Horstmann, “*Object Oriented Design & Patterns*”, 2<sup>nd</sup> Ed., Wiley, 2005

ISBN 0-471-74487-5

Textbook webpage: [http://www.horstmann.com/design\\_and\\_patterns.html](http://www.horstmann.com/design_and_patterns.html)

## Class Time & Place

Tue. 07:10 PM – 10:00 PM

Davie: LA225 (live)

PSL: CO229 (video link to Davie)

## Office Hours:

Tue. and Wed. 5 PM – 7 PM

Davie, room LA 323, tel. (954) 236-1310

## Course Objectives

Help students understand and apply:

- the methods of object-oriented design and programming in the context of the software development cycle,
- the basics of Unified Modeling Language for analysis and design of object-oriented software,
- Java programming, as a tool for software implementation,
- patterns for software design, for improving software quality.

## Course Description

Brief introduction to Java; software development process; functional specification and use cases; Unified Modeling Language diagrams; design methodology; OO design principles; implementation in Java; design patterns; Java applet framework; other Java topics (reflection, serialization), multithreading.

Students will have the opportunity to get in-class hands-on experience editing, building, and executing Java applications. **Students should bring their laptop in class** as they will work with

Java SE 6 using the BlueJ development environment. The computer is also required for taking the weekly in-class quiz.

**Blackboard:**

All course material will be posted on Blackboard

<http://blackboard.fau.edu>

**Assignments and Grading :**

At the beginning of each class students will take a short quiz. There will be a homework posted after the end of each chapter. Students will have to deliver a term project at the end of the semester.

Grading:

- Quizzes: 30% (best 12 grades out of 13 quizzes)
- Homeworks: 40%
- Project: 30%

The final grade will depend on how well the student performs relative to the rest of the class.

**Assignment Submission**

Homeworks are due before the date specified on Blackboard and must be submitted on Blackboard's Digital Dropbox. No assignments will be accepted after the due date. A late assignment or no submission will get 0 points.

**Policy for Incomplete Grade**

According to University policies, students may receive an "Incomplete" grade only under exceptional circumstances. For this course, the instructor requires written documentation in support.

**Policy for Plagiarism**

Students are encouraged to collaborate on homeworks with the expectation to submit their original work. Any occurrences of plagiarism will be handled according to F.A.U. policies.

**Useful References**

- [Textbook webpage: http://www.horstmann.com/design\\_and\\_patterns.html](http://www.horstmann.com/design_and_patterns.html)
- [Textbook problem solutions: http://www.horstmann.com/oodp2/solutions/solutions.html](http://www.horstmann.com/oodp2/solutions/solutions.html)
- Mary Campione et al., "The Java Tutorial", Sun Microsystems, at <http://java.sun.com/docs/books/tutorial/index.html>
- Craig Larman, "Applying UML and Patterns", 3<sup>rd</sup> edition, Prentice Hall, 2004.
- Martin Fowler, "UML Distilled", 3<sup>rd</sup> edition, Addison-Wesley, 2003.
- Erich Gamma et al. "Design Patterns", Addison-Wesley Professional; 1st edition, 1995

## Resources

- Java Development Kit (JDK) 6 : select JDK SE 6 Update 7 from <http://java.sun.com/javase/downloads/index.jsp>
- Java SE 6 Documentation: from <http://java.sun.com/javase/downloads/index.jsp>
- Java Tutorial: <http://java.sun.com/docs/books/tutorial/index.html>
- The BlueJ integrated Java environment: <http://bluej.org/>
- Violet UML Modeling tool: <http://sourceforge.net/projects/violet/>
- JUnit for unit testing: <http://junit.org/>

## To install:

- Java Development Kit (JDK) 6 : select JDK SE 6 Update 7 from <http://java.sun.com/javase/downloads/index.jsp>
- The BlueJ integrated Java environment: <http://bluej.org/>
- Violet UML Modeling tool: <http://sourceforge.net/projects/violet/>
- JUnit for unit testing: <http://junit.org/>

## Tentative Class Schedule

1	08/26/06	Introduction to Java (Ch. 1)
2	09/02/06	Introduction to Java (Ch. 1)
3	09/09/06	Object-oriented Design Process (Ch. 2)
4	09/16/06	Object-oriented Design Process (Ch. 2)
5	09/23/06	Guidelines for Class Design (Ch. 3)
6	09/30/06	Interface Types and Polymorphism (Ch. 4)
7	10/07/06	Interface Types and Polymorphism (Ch. 4)
8	10/14/06	Patterns and GUI Programming (Ch. 5)
9	10/21/06	Patterns and GUI Programming (Ch. 5)
10	10/28/06	Inheritance and Abstract Classes (Ch. 6)
11	11/04/06	Inheritance and Abstract Classes (Ch. 6)
12	11/11/06	The Java Object Model (Ch. 7)
13	11/18/06	Frameworks (Ch. 8);
14	11/25/06	Multithreading (Ch. 9)
15	12/02/06	Multithreading (Ch. 9)
16	12/09/06	(finals week)