**BUS 680 - Special Topics in Information Technology**
**University at Albany, State University of New York**
**Fall 2003**

## Instructor Information


Name: Sanjay Goel
Email: goel@albany.edu
Phone: (518) 442-4925
Room: BA 310b
Office Hours: M 1:30 - 3:30 or by appointment


## Class Information

Time: TH 9am - 12pm
Room: BA 209 / BA 222
Dates: September 2 - December 17, 2003
Credit(s): 3
Call #: 4485
Available Labs: MIS Lab (BA 234), HRIS Lab (BA 232)

## Course Overview

This course provides an overview of some emerging techniques in Information Technology and teaches concepts of advanced programming languages. The content of the course will change from year to year as new technologies emerge. The class this year will cover three separate topics, that is, Java Programming, Data Mining, and Systems Thinking. The initial two-thirds of the class will be taught by me and the last one-third of the class will be taught by Prof. Rich. This is a syllabus for the initial two-third of the class. The class focuses on development of simple business logic in a structured form. The focus is on development of logic rather than the specifics of a programming language. The class covers the basic elements of a programming language, such as data types, loops, arrays, functions etc. The class also covers the basic concepts of object oriented programming, such as, abstraction, polymorphism and Inheritance. By the end of the class the students should be able to write simple programs in Java language and be able to abstract a problem into a class structure.

## Learning Objectives (Programming Concepts)

Students will learn:

1. The evolution object oriented programming languages
2. Application of object oriented programming to solve business and enterprise problems
3. The basic syntax of Java language
4. The concepts of object oriented programming

Students should be able to:

1. Install the programming environment for programming in Java
2. Write programs encapsulating simple logic
3. Compile, debug, and run Java programs
4. Able to create simple classes

## Class Structure

The first half of each class is going to be conducted in the class room and the second half of the class will be conducted in the computer lab. The students will learn the basic concepts in the first half of the class and go through a programming example. In the second half they will develop software based on the concepts they have learned in the first half. Please come prepared with the readings as the class will move at a brisk pace.

## Text & Reference Books

Three books are listed in the syllabus, however, I expect students to purchase only the text book. The other books are only listed for students who would like additional material to increase their understanding. There is also a lot of material available on the web. Please check out the SUN Microsystems web site for additional information.

Text: Ira Pohl & Charlie McDowell, *Java by Dissection, The essentials of Java Programming,* Updated Edition. ISBN 0201751585

Reference: Peter Van Der Linden, *Just Java,* 2nd Edition. ISBN
Reference: Kathy Sierra & Bert Bates, *Head First Java*, ISBN 0596004651

**Grading**
Homework/Project: 50%
Exam: 50%

## Course Schedule

| Lec. | Date | Topics | Readings | Practice Problems |
|---|---|---|---|---|
| 1 | 9/4 | Java Development Environment, Programming Fundamentals, Data Types, Operators, Expressions, Simple IO | Ch 1 & 2 | Ch 2 (# 11 - 13) |
| 2 | 9/11 | Control Flow and Statements, Functional Abstraction (methods), Arrays | Ch 3 - 5 | Ch 3 (# 14, 16, 20)<br>Ch 4 (# 3,13,20) |
| 3 | 9/18 | Data Abstraction: (Constructors, Scope of Variables & methods, O-O Design) | Ch 5 - 6 | Ch 5 (# 14, 17, 20) |
| 4 | 9/25 | Inheritance, Polymorphism | Ch 6 - 7 | Ch 6 (# 7, 13, 16) |
| 5 | 10/2 | Review/Exam | | |
| 6 | 10/9 | e-Government/Ethics & Privacy | | |
| 7 | 10/16 | Mobile Computing / M-Commerce | | |
| 8 | 10/23 | Information Technology in Health Care / Bioinformatics | | |
| 9 | 10/30 | Computing on Demand/Exam | | |