LEBANESE AMERICAN UNIVERSITY
School of Arts and Sciences
Division of Computer Science and Mathematics
Spring 2007
CSC243 : Introduction to Object Oriented Programming
(Lecture: MWF 09:00, BB1003 and Lab: M 16:30 – 19:30, Sage 110)

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Office Hours: MWF 11:00 – 13:00

Catalog Description
This course introduces the fundamental concepts of programming from an object-oriented perspective. Topics include introduction to the object-oriented paradigm: abstraction, objects, classes, methods, parameter passing; encapsulation, inheritance, polymorphism; fundamental programming constructs: variables, types, expressions, and assignment; simple I/O; conditional and iterative control structures; structured decomposition; fundamental data structures: primitive types, arrays, strings and string processing; implementation strategies for algorithms; debugging strategies; and the concept and properties of algorithms.

Purpose
To introduce students to the fundamental concepts of programming from an object-oriented perspective and to enable them develop skills in designing and developing simple computer programs.

Objectives
The objectives of this course are to give students:
1. The principles of problem solving and of good program implementation and testing
2. The fundamentals of object oriented programming
3. The basic skills needed to write computer programs in Java
4. The basic background in programming that will form the foundation for more advanced courses in computer science

Learning Outcomes
At the end of this course, students will learn:
- Develop algorithms to design a solution to a problem
- Software reuse by using Java class libraries or APIs
- Use the JAVA syntax and semantics to express their solutions to programming problems and implement a design using appropriate data types, control structures, methods, objects and classes
- Apply simple testing and debugging strategies to identify software faults
- Use input and output statements
- Declare primitive types variables and use dynamic memory allocation, e.g., new, to create new objects

- Write and call static and nonstatic methods and use parameter passing involving both primitive and reference types
- Formulate complex logical and arithmetic expressions involving multiple operators
- Implement control structures like simple or nested selection and repetition statements
- Design and implement new classes and simple ADTs incorporating multiple primitive instance variables and reference instance variables, with appropriate constructor, accessor and modification methods
- Use arrays to store data in and retrieve data from lists and tables of values
- Declare and manipulate multidimensional arrays
- Search for a given value in an array using various searching algorithms: linear search and binary search
- Sort arrays using various sorting algorithms: iterative selection and bubble sort
- Understand basic concepts of inheritance and polymorphism
- Understand how and when to use inheritance and polymorphism
- Learn how to program in a development environment and how to use the integrated tools to compile, run and debug a program

Lecture Material and Schedule

No. of lectures	Topic	Chapter
2	Introduction to computers and programming languages	1
4	Introduction to Java applications	2
6	Object-oriented programming: classes and objects	3
9	Control statements: selection and repetition statements	4-5
6	Implementing and using methods	6
6	Arrays	7
3	Searching and sorting algorithms	handouts
2	Classes and objects: encapsulation and data abstraction	8
2	Inheritance and Polymorphism	9-10
-	Graphical user interface (time permitting)	

Teaching Method   Lectures; lab tutorials and assignments

Textbook   Deitel and Deitel. Small Java: How to Program. 6th Ed., Prentice Hall 2005

Grading Policy	Participation	3%
	Lab Assignments	12%
	Quiz I (Week 6)	25%
	Quiz II (Week 11)	25%
	Final Exam	35%

Policy on Cheating
Students caught cheating on an exam receive a grade of zero on the exam in their first cheating attempt in the course and receive a warning. Students caught cheating for the second time in the same course will receive a grade of "F" in the course and a second warning.

University Attendance Policy
Missing one third of classes implies that you will have to drop the course.

Remarks

- <u>Participation:</u> This includes class attendance. You are responsible for the work done and for the announcements made during your absence. You get 3 for less than two absences, 2 for two and three absences, 1 for four and five absences, and 0 for more than 5 absences. In case you have a valid excuse for not attending a class session, you have to send the instructor an email **<u>within three days</u>** to explain your case.

- <u>Make-ups and Incomplete</u>: Students are not automatically entitled to make-ups; F will be given until reasons (in writing) are presented and approved. Students should present their reason **<u>within one week after the exam date</u>** otherwise it will not be accepted.