

Course #:	CSCI-C 490
Course Title:	Introduction to Object Oriented Programming (Advanced Java Techniques)
Course Type:	Upper level elective
Prerequisites:	C243 Data Structures
Credits:	3
Text Book:	Java How to Program, Prentice Hall, Deitel & Deitel, 5th Edition, ISBN 0-13-101621-0
References:	Handouts and Online Java Books http://developer.java.sun.com/
Current Catalog Description:	The objective of this course is to first provide an understanding of object oriented programming concepts. Next we will survey the basic constructs of the Java programming language. Later we introduce the Unified Modeling Language and discuss its use in object oriented analysis and design. Finally, we will examine some advanced facilities provided by the Java language. Facilities such as graphics and GUI, network programming, multithreading, graphics, animation and database connectivity will be discussed. Student should be proficient with C++ language and knowledgeable about data structures and algorithms. Knowledge of event driven programming, multithreading, and operating system concepts is a plus. A substantial programming project in Java may be assigned.
Course Goals	The student who completes this course: <ol style="list-style-type: none"> 1. Will be introduced to advanced programming concepts using the Java programming language. 2. GUI concepts and facilities 3. Event driven programming concepts 4. Network programming and client/server applications 5. Multithreading 6. Graphics programming and animation 7. Database connectivity
Major Topics Covered in the Course	<ol style="list-style-type: none"> 1. Installing the Java environment 2. Porting programs from C++ to Java 3. Compare and Contrast Java vs. C++ 4. Review of OO Concepts 5. Basic GUI Concepts 6. File I/O in Java 7. Data structures 8. 2D Graphics 9. Animation 10. Multithreading and Inter-thread communication

	11. Networking in Java (Client / Server applications) 12. Java Database Connectivity (JDBC)																		
Laboratory projects (specify number of weeks on each)	Installing JAVA, Introduction to JDK (Java Development Tool Kit) and the IDE.																		
Estimate Curriculum Category Content (Semester hours)	<table border="1"> <thead> <tr> <th>Area</th> <th>Core</th> <th>Advanced</th> </tr> </thead> <tbody> <tr> <td>Algorithms</td> <td>20</td> <td></td> </tr> <tr> <td>Software Design</td> <td></td> <td>10</td> </tr> <tr> <td>Comp. Arch.</td> <td></td> <td></td> </tr> <tr> <td>Data Structures</td> <td></td> <td>3</td> </tr> <tr> <td>Prog. Languages</td> <td></td> <td>20</td> </tr> </tbody> </table> <p>Additional hours may be dedicated to curriculum categories not listed above. For example explanation of concepts and theories. Discussion of social and ethical issues, discussion of inter personal relationships and working within groups.</p>	Area	Core	Advanced	Algorithms	20		Software Design		10	Comp. Arch.			Data Structures		3	Prog. Languages		20
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Oral and Written Communications	Every student is required to submit at least __1__ written reports (not including exams, tests, quizzes, or commented programs) of typically __15__ pages.																		
Social and Ethical Issues	Not a course objective.																		
Theoretical Content	Theory of programming languages, Multithreading, Networking issue, etc.																		
Problem Analysis	Each of the programming assignments (about 5) consists of analysis design and implementation of a specific problem related to major topics of the course (i.e. GUI, 2-D Graphics and Animation, Networking, Multithreading and Inter-thread Communication, and Database connectivity.																		
Solution Design	Prior to implementing each programming assignments alternate solutions are discussed in class.																		
Prepared By	Hakimzadeh, Surma																		