COP 4610L: Operating Systems (Summer 2002)

Semester:	Summer 2002
Course Number:	COP 4610L, Sections 1
Instructor:	Dr. Denver Williams
Office:	ENGR 440
Class Time:	Section 1 (Lecture): Wednesday, 4:00 – 5:30 pm Section 1 (Lab): Wednesday, 5:30 – 6:50 pm
Class Rooms:	Lecture: ENG-II 0227
Lab:	ENGR 260
Office Hours:	Wednesday 3:00-3:50 pm. Also by appointment.
Office Phone:	(407) 823-4964
Mobile:	(407) 353-6642
Web Page:	http://www.cs.ucf.edu/~dwilliam
Email:	dwilliam@cs.ucf.edu

Prerequisites and Co-requisites

You must be proficient with a programming language such as Java, C++, or C. Java will be the primary programming language use for programming exercises. You must either know Java, or feel that you can learn it on your own in about three weeks. Java 2 extensions like JDBC will be covered in class. Exposure to client/server and distributed systems concepts would be helpful.

Course Objectives

The objective of this course is to expose you to the world of heterogeneous enterprise computing architecture with emphasis on client/server using distributed object. The course will teach you how to write client/server applications using distributed Object Request Broker (or ORBs) and Java. This course will focus on Java ORBs that comply with the Object Management Group's (OMG) CORBA standard for distributed objects. Over 800 companies are now part of the CORBA consortium. These companies span the entire spectrum of the software industry. In addition, Netscape is embedding a CORBA/Java ORB in all its browsers and servers. Sun also include a CORBA ORB called Java IDL in the Java JDK. CORBA standards are also used extensively in Sun's Java 2 Enterprise Edition (J2EE) which includes Enterprise JavaBeans. So there should be a very large mass market for CORBA/Java software – both on client and servers.

This course will also expose you to CORBA's main competitor – Microsoft's COM+. Microsoft is building its entire software infrastructure on top of its COM+ technology. So COM+ is another ORB technology you need to understand. This course will compare CORBA with COM+ and with Java RMI, Sockets, HTTP/CGI, and Servlets.

The convergence of ORBs, Java, and the Web is creating a new client/server architecture called the *Object Web*. This new architecture is used to create intranets and extranets; it will revolutionize the way information systems and applications are designed, built, deployed. An objective of the course is to make you very proficient with the underlying ORB technology on which the Object Web is being built. You will learn how to develop distributed Java applications using CORBA. The course will bring you up-to-date with the emerging CORBA standards and will expose you to state-of-the-art CORBA/Java products. It also teaches you how to use distributed object systems. This course is at the leading edge of the technology. It is expected that whatever investments you make learning this technology will have a long life.

Course Outline

The course will be organized along three main areas, namely:

1. The operating system concurrency and synchronization primitives with emphasis on the Java Thread model.
2. Generic technologies
    - Security: secret versus public key, digital signatures, SSL
    - Database connection: JDBC
    - Server pages: JSP and perhaps ASP
    - XML and HTML
3. Basic client/server enterprise architecture: primarily concepts and maybe `a few assignments`. Topics covered in this section will include but not limiting to the following
    - Sockets
    - RPC, RMI
    - CGI, etc
4. Distributed client/server enterprise architecture. Topics covered in this section will include but not limiting to the following
    - COM/DCOM/COM+: concepts
    - CORBA, Jini : concepts and programming assignments

The Labs

A number of small programming assignments will be given to expose you to the various technologies. The JDK1.3 will be the programming platform.

Course Text

"Advanced Java2 Platform: How to Program," Deitel, Deitel and Santry,
Prentice-Hall, 2002.

Additional Texts

1. Clent/Server Programming with Java and CORBA, Second Edition by Orfali and Harkey (Wiley, 1998)
2. Instant CORBA, by Orfali, Harkey, and Edwards (Wiley, 1997)

Grading

Quizzes: 30%
Programming Assignments: 50%
Final Exam: 20%

Grade	Accumulated Percentages
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

Class Schedule

	Date	Activity	Description
Day1	05/08/2002	Lecture/Lab	OS Concepts: Processes and Threads
Day2	05/15/2002	Lecture/Lab	
Day3	05/22/2002	Lecture/Lab	
Day4	05/29/2002	Lecture/Lab	
Day5	***06/05/2002***	***Test***	***Mid Term Test Number 1***
Day6	06/12/2002	Lecture/Lab	
Day7	06/19/2002	Lecture/Lab	
Day8	06/26/2002	Lecture/Lab	
Day9	07/03/2002	Lecture/Lab	
Day10	***07/10/2002***	***Test***	***Mid Term Test Number 2***
Day11	07/17/2002	Lecture/Lab	
Day12	07/24/2002	Lecture/Lab	
Day13	***07/31/2002***	***Test***	***Final Exam***

Important Dates

06/14/2002 Withdrawal Deadline
06/05/2002 Mid Term Test Number 1
07/10/2002 Mid Term Test Number 2
07/29/2002 Final Exam begins