CSE486/586
Distributed Systems
Spring 2007

Bina Ramamurthy
127 Bell Hall, Tel: 645-3180, Ext.108
Office Hours: Mon, MWF: 1.00-2.00PM
Username: bina@cse.buffalo.edu
URL: http://www.cse.buffalo.edu/ bina/cse486/spring2007

Course Objective

This course will address some of the fundamental challenges in the design, implementation and deployment of large scale distributed systems including connection establishment, event handling, interprocess communication, storage management, static and dynamic component configuration, concurrency and synchronization. It will also cover issues related to distributed objects such as mobility, security, naming and location. Reliability is a core issue that will be covered across all the topics discussed in the course. Possible solutions will be analyzed at various levels of granularity using objects, processes, services, components and frameworks. This course will focus on practical solutions over theoretical formalisms and server-side and middle-ware technology over client-side. Special attention will be given the emerging technology of Service-Oriented Architectures (SOA), Web Services and Grid Computing. Concepts studied will be applied to solve problems in various domains such as wireless world, embedded systems, electronic marketplace and application servers. Students will work in orchestrated groups of two with well-defined responsibilities on middleware-based projects. There will be a mid-semester assessment and a final exam.

On completion of this course, a student will be able to design and implement a reliable distributed system, and will be able to analyze a distributed system for its architecture, algorithms, protocols and services. Students will have good undertanding and working knowledge of reliable distributed systems.

Class Meetings

```
Tue/Th: 9.30- 10.50AM, 114 Hochstetter
Recitations times will be announced in the first week of classes.
```

Required Textbooks

Distributed Systems: Concepts and Design, by G. Coulouris, J. Dollimore and T. Kingberg, Fourth Edition, Addison-Wesley, 2005.

Prerequisites

1. CSE505/CSE305 or equivalent; Good foundation in problem solving, design representation, and object-oriented design methodology and application and design and development in Java.
2. Working knowledge of C++ and Java programming languages.
3. You should also be familiar with object-oriented modeling, modern code design and debugging practices.

Exams

Traditional exam component is realized using two pop quizzes, one will be held before the last date to **R**esign from the course and the second after the midterm. No makeup quiz will be given.

Projects

The due date for each project will be announced when it is assigned. All the source code, documentation, makefile, data files, and README files are to be submitted on-line. The details of how to submit given along with your first project. You will have to follow the rules for the other projects too.

I reserve the right to change the project specifications at any point before the due date to address problems that may arise during the course of the project. If your design is modular the changes will not be difficult to implement. A detailed grading guideline will be given to you along with the project specification. Use this as a guide for your design and implementation. It is absolutely necessary to keep up with the programming projects in the class. There will be a 25 point deduction for each day the project is late after the due date.

Grading

Two pop-quizzes (50X2)	100 points
Attendance	50 points
Projects and demonstration (3:100, 150, 200)	450 points

Final letter grades will be based on the (combined) overall percentage of all the items listed above. A (95 –), A- (90 – 94), B+ (85 – 89), B (80 – 84), B- (75 – 79), C+ (70 – 74), C (65 – 69), C- (60 – 64), D+ (55 – 59), D (50 – 54), F (less than 50). This policy is subject to change. If needed, the individual components and the overall grades will be appropriately curved. **In order to pass the course you must have a passing grade in every component of the course listed above.**

Incomplete Policy

Incompletes will not given in this course, unless under the most dire circumstances. By definition, an incomplete is warranted if the student is capable of completing the course satisfactorily, but some traumatic event has interfered with his/her capability to finish within the timeframe of the semester. Incompletes are not designed as stalling tactic to defer a poor performance in a class.

Academic Dishonesty

You are required to work on your own unless the project specification clearly states that it is a group project with responsibility for each member of the group. Students who collaborate on homework, projects and/or the exams will be penalized with an 'F' for the course. CSE department has a strict policy on Academic Dishonesty. This will be strictly followed in this course. See: `http://www.cse.buffalo.edu/academics-academic_integrity.shtml`

There is very fine line between conversation between your peers about the concepts in the course and academic dishonesty. You are allowed to converse about the general concepts, but in no way are you allowed to share code or one person do the work for others. Remember that items taken from the web are also covered by the academic dishonesty policy. Also projects from this class cannot be used as projects for other courses and vice versa (projects from other courses cannot be passed in as work for this class).

Attendance and Participation

It is very important that you attend all the lectures and the recitation. 50 points of the total 600 points is assigned for attendance. You are strongly encouraged to participate in the lecture by asking relevant questions and taking part in useful discussion. This helps break the monotony of the lecture format. But if I find a discussion digressing from the topic of the lecture I may defer the discussion to after the regular lecture period or to the newsgroup meant for this class. There is newsgroup for the class: sunyab.cse.486. Understand that the newsgroup is a public forum and try to be professional and discuss only class related matters.