CSCI-6680 Advanced Distributed Computing

Spring 2008

Meeting Time: MW 2:00 - 3:20 pm

Classroom: NTRP B192

Instructor: Armin R. Mikler
Office: NTRP F245
Office Hours: TW 9:30 – 11:00am, or by appointment
E-Mail: mikler@cs.unt.edu
Teaching Assistant:
TA Office Hours: none
Textbook: *Distributed Systems: Principles and Paradigms* by Andrew Tanenbaum

Course Web Page: TBA
Prerequisites: CSCI 5540 or equivalent

Advanced Distributed Computing
After a brief review of traditional operating systems principles, we will be investigating a variety of problems that occur when multiple computers are cooperating (or not) to manifest what is known as a distributed systems. The field of distributed systems encompasses almost every subject area in computer science from communication protocols to algorithm design. The system aspects, such as architectural characteristics are intertwined with algorithmic methods to form a coherent distributed computing infrastructure. Hence, we will cover a broad array of topics, including distributed algorithms, grid computing, and distributed coordination.

Useful References:

1. *Advanced Concepts in Operating Systems* by M. Singhal and N. G. Shivaratri
2. *Distributed Algorithms* by Nancy Lynch
3. Operating Systems Principles by Lubomir Bic and Alan Shaw,
4. *Operating Systems – Advanced Concepts* by Maekawa, Oldehoeft, and Oldehoeft
5. *Operating Systems* by J. Bacon and T. Harris
6. *Operating Systems* by W. Stallings
7. *Advanced Programming in the UNIX Environment* by W.R. Stevens
8. *Beginning Linux Programming* by R. Stones and N. Matthew

Tentative List of Topics:

Topic:	Reading:
Overview of Distr. Systems	Slides, Textbook, Papers
OS Principles – A Review	Textbook (Chapters 1 – 3)
Distributed System Architectures	Chapter 4
Time (and why it matters)	Chapter 5 and papers
Distributed Mutual Exclusion	Chapter 6 and papers
Distributed Deadlock Detection	Chapter 7 and papers
Fault Recovery and Fault Tolerance	Chapter 12 & 13 and papers
Distributed Resource Management	Chapters 9, 10, 11 and papers

Homework:
There will be about 3-4 homework assignments. Homework assignments are to be completed individually unless specified otherwise. Homework will consist of problem sets as well as small programming assignments. It is important to spend the time to experiment with the various program elements, so start your homework promptly. All assignment submissions must be typed. **Handwritten assignments WILL NOT be graded.**

Projects:
There will be 1 project. The project must be accompanied by a detailed project proposal, a half-time progress report and a comprehensive final report describing the problem, the implementation, experiments and results as well as their interpretation.

Paper Presentations:
Each student will be presenting a small number (2-3) classical research papers in class. Presentations may exceed a single class period depending on discussion.

Exams:
There will be one midterm exam, covering the fundamental concepts presented in this course, and one take-home final.

Grading:

Item	**% of final grade**
Presentations	30%
Homework	20%
Project	30%
Exams	20%

Policies:

- All homework assignments and projects must be turned in at the beginning of class on their respective due date. Late assignments will be accepted with a 25% penalty per day. Assignments that are submitted more than two days past their deadline will not be accepted and not graded. All assignment submissions must be typed.

- Cheating will not be tolerated. Anyone found guilty of cheating on a test or assignment will be awarded an F grade for the course. Discussions of problems and assignment with your classmates is welcome and encouraged, however, sharing of solutions is not. If you need help, you should ask the TA or the instructor. Cheating includes, but is not limited to, all forms of plagiarism and misrepresentation.

- There will be NO "make-up" Exams. In case of verifiable emergencies, arrangements must be made with the instructor.

- There will be NO early midterm or final exams.

Disability Policy:

The Computer Science Department and this instructor cooperate with the Office of Disability Accommodation to make reasonable accommodations for qualified students (cf. Americans with Disabilities Act and Section 504, Rehabilitation Act) with disabilities. If you have not registered with ODA, we encourage you to do so. If you have a disability for which you will require accommodation please discuss with me after class and present a written accommodation request on or before the 2nd week of class.

Student Information Sheet

(Please submit this form at the end of the first class)

First Name: _____

Last Name: _____

UNT-ID #: _____

E-MAIL : _____

Web Page: _____