

CSE 6344: Advanced Topics in Networking

Fall 2008

Short Course Description:

This course focuses on recent trends in computer networking including wired (copper and optical) and wireless technologies. New techniques and technologies will be introduced with emphasis on their performance evaluation. Students will be introduced to cutting edge research and to how to do relevant computer networks related research on their own.

Prerequisites:

- CSE 5344
- CSE 5346 preferred or any other networking class (and all their prerequisites)
- C and C++ programming knowledge (no Java substitutions)

Note: if your situation is questionable please contact the instructor and/or your graduate advisor to avoid complications.

Instructor: Gergely Záruba

- Office: 113 GABC
- Phone: (817) 272-3602
- Office hours: Mondays and Wednesdays 4:30pm – 5:20pm
(other consultations by appointment only.)
- Instructor's e-mail: zaruba@uta.edu
- GTA: Hyun "Stella" Choe choe@uta.edu
Office hours: Tuesdays and Thursdays 4:00pm-5:30pm NH 239

Objectives:

The objective of this course is to give an introduction and insight into research in networking and communications, and the lower layers (from the physical to the network layer) of recent wireless technologies. Current technologies (e.g., IEEE 802.11, Bluetooth – 802.15, and WDM networks) and their building blocks will be discussed.

Outcomes:

By finishing this course, students will possess the knowledge of how to perform research and prepare publications and reports on networking and telecommunication related subjects, and acquire knowledge on how current wireless technologies employ the wireless medium for their operation. Also, students will become familiar with basics of optical networking while familiarizing with the available components on the market.

Details of Curriculum:

- Class WWW site: <http://crystal.uta.edu/~zaruba/CSE6344/>
Note: Please check WWW site for up to date information
- Class mailing list address: CSE6344-ZARUBA@LISTSERV.UTA.EDU
Note: students are strongly encouraged to sign up for the mailing list of the class; *Please either request membership via the listserv provided web interface OR send me an email within the first week of classes with the subject:CSE6344 and the body containing your email address.*

- Text Books: None (papers, publications, WWW documents, Instructor's notes and notes taken by the students)
Recommended book: Raj Jain, "The Art of Computer Systems Performance Analysis," Wiley, 1992. (ISBN:0-471-50336-3)
- The Instructor may invite researchers of wireless and optical topics on selected class days,
- The following list tentatively outlines some topics that may be discussed in this course:
 - How to do research and write publications
 - Digital radio transmission – problems and solutions.
 - Medium access control protocols (TDMA, FDMA, CSMA, etc.) and their properties.
 - Aspects of the IEEE 802.11 standards
 - Bluetooth, IEEE 802.15
 - Other wireless or optical transmission standards/technologies

Details of Class Policies:

Course Grades:

Course grades will be based on the following:

- Homework: 15%
 - The homework will be a simulation project in C++, with a hard due deadline of October 17th, 2008 before 11:59pm CST.
 - There will be no make up for homework. The maximum grade given for the homework will decline by 10% of the total grade each calendar day the homework is overdue starting at 11:59:01 am CST on the due date.
- Midterm: 15%
 - There will one midterm exam during the semester (no final exam), tentatively on November 24th, 2008.
 - There will be no make up exams!
- Research paper and presentation: 30%
 - Students will be required to write a research paper (around 10 pages) on a specific topic or problem and present it to the rest of the class in 10-15 minute seminars. Papers have to be turned in to the Instructor at least a week before the presentation. Scheduling presentations will be done during the semester by consulting with the Instructor.
 - The paper's topic should be chosen by consultation with the Instructor. All students have to have an assignment by October 20th, 2008 5:30pm CST.
 - Students are encouraged to approach the Instructor with proposals on the topics of their papers.
 - Groups may be formed for up to 3 persons/group although **groups with 2 persons** are preferred. Some students may be required to perform research on their own.
- Programming projects: 30%
 - Students will be assigned programming tasks in which they can prove that they have understood a specific part of the curriculum.
 - Programs and documentation have to be turned in to the Instructor by December 9th, 2008 1pm CST along with a short programming/users manual.
 - The programming tasks should be chosen by consultation with the Instructor. All students have to have an assignment by October 22nd, 2008 5:30pm CST.

- Students are encouraged to approach the Instructor with proposals on the programs they envision, programming projects can be closely related to research paper topics. Students will be encouraged to demo their programming projects to the instructor and the GTA.
- Groups are encouraged in the same form as for the research paper requirement.
- Class participation: 10%
 - Although no attendance catalogue will be kept, students are expected to attend classes and arrive on time, and to interact during the debate section of the seminars of their fellow students.

Tentatively, course grades are determined from the total points (100) earned as follows:
90-100: A ; 75-89: B ; 60-74: C ; <60: F

Make-ups:

Make-ups for (non-exam) graded activities may be arranged if your absence is caused by illness or work/personal emergency. A written explanation (including supporting documentation) must be submitted to your Instructor. If the explanation is acceptable, an alternative to the graded activity will be arranged. Make-up arrangements must be arranged prior to the scheduled due date.

Notes:

- The Instructor reserves the right to modify course policies, the course calendar, and assignment or project point values and due dates.
- All students are expected to be responsible users of the computer systems used for this course.

Accepted file formats for papers/reports:

The Instructor is requiring the students to turn in their papers and reports either in *.pdf* (Adobe's portable document format – can be generated, e.g., either by *Adobe Distiller* or later versions of *ghostscript*) or in *.ps* (Adobe's Postscript – can be generated, e.g., from Latex source files by *latex* and *dvips* or from the Windows operating systems by installing a virtual postscript printer device and printing the document to a file) formats. Source files (!) must be turned in along with the paper in a zip or a gzip (or tgz, .tar.zip) archive. Students are encouraged to use the Latex language and its appropriate compilers or the Microsoft Office program family (please see the Instructor if you intend to use anything else). If viruses are submitted along with the files a student turns in, the Instructor may degrade the grade of the assignment.

Academic honesty:

All students are expected to pursue their academic careers with honesty and integrity. “Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts” (*Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22.*) Students found guilty of dishonesty in their academic pursuits are subject to penalties that may include suspension from the university. Any student found guilty of academic dishonesty will receive a -100% for that work (project, exam, homework, etc.) as well as having the course grade lowered one full letter grade - in addition to any other penalties assessed

(suspension, expulsion, probation). These and other applying UTA rules, will be strictly enforced. Any case of academic dishonesty will be treated in accordance with the UTA *Handbook of Operating Procedures* or the Judicial Affairs website at <http://www2.uta.edu/discipline>. If you do not understand this policy, it is your responsibility to obtain clarification or any additional information you may require. Students are allowed to discuss homework with classmates, but are **not** allowed to copy the solutions of others or share solutions with others. All work turned in for grading must be the student's own work.

Students will be required to sign an academic honesty letter to be kept with the instructor. Failing to provide with such a letter by census day will result in the respective students' withdrawal from the class.

In addition to the punishment from the University, the instructor will give a "minus 100%" grade on the given assignment/exam in question.

Disabilities:

If you require any accommodation based on disability, please meet with the Instructor (with your supporting papers) in the privacy of his office the first week of the semester to be sure you are appropriately accommodated.

Grievance Procedure

Anyone feeling that a dispute exists after the grading of any assignment or exam may submit a written grievance. This grievance should identify the item in dispute and arguments supporting the student's position. Grievances must be submitted in writing within two class periods following the return of the assignment. The instructor or GTA agrees to return a written response to the student's grievance within two class periods from receipt of the grievance. If the error is due to wrongful calculation of points, then no grievance needs to be submitted. If a written grievance is received, the instructor and GTA reserve the right to re-grade the entire exam (not just the specific point in question).