CSci 5105

Introduction to Distributed Systems

Spring 2015
Mondays and Wednesdays 4:00 – 5:15
Room: ME 212

Instructor: Anand Tripathi
CSci 5105: Distributed Systems

Instructor: Anand Tripathi
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Office: Keller Hall 5-205

Office Hours:
- Tuesdays 11:00-12:00 and
- Thursdays 2:00—3:00 pm
  Other times by appointment, or see me if my office door is open
Teaching Assistant

Kwangsung Oh (@cs.umn.edu)
email: ohkwang@cs.umn.edu

Office Hours:
  Mondays        2:00-3:00 pm
  Wednesdays     2:30-3:30 pm
Telephone 612-626-7515
Email communication

• Please use the following email address for any questions regarding the course:

csci5105-help@cs.umn.edu

Please limit your email communication to get quick clarifications or information. For detailed consultations please see the instructor or the TA.
Class Webpage

http://www-users.cselabs.umn.edu/classes/Spring-2015/csci5105/

• All important communication related to this course will be posted on the course webpage
• Assignment/Exam schedule
• Lecture notes
• Moodle link
Access to Course Materials

- Course materials are password protected.
- Login Id:
  - First letter of your **firstname**, followed by the **first 5 letters of your lastname**: All lowercase.
    - Example 1: Thomas Jefferson
      -> login ID will be tjeffe
    - Example 2: George Lu
      -> login ID will be glu

- Password:
  - Your 7-digit student-ID number
Course Objective

- Historical perspective
- Client-server model, Service-based model,
- TCP and UDP programming, Sun RPC, Java RMI
- Synchronization of physical clocks, logical clocks, event ordering, causality of events, and vector clocks.
- Mutual exclusion protocols in distributed systems
- Group communication and coordination models - Consensus and agreement protocols.
- Replication management and consistency models.
- Peer-to-peer systems: Chord, Pastry, CAN
- Distributed file systems – NFS, Andrew
- Security and protection -- authentication protocols and Kerberos design.
Prerequisites/Background

- This course requires systems programming knowledge that students acquire in Csci 4061 and fundamentals of operating system structures studied in CSci 5103.
- Must have thorough understanding of 5103 topics
- Familiarity with UNIX/Linux programming environment
- Proficient with Java programming
- Familiarity with thread/concurrent programming
- Some knowledge and understanding of computer networks is helpful.
Textbook

Distributed Systems (Second edition)
Author: Andrew Tanenbaum and Maarten Van Steen
Publisher: Prentice Hall

Additional Reading:
I will post links to several papers from the literature.
Assignments and Exams

Assignments and exams are weighted as shown below.

64%  8 Assignments
  4 Assignments on theory/concepts  (individual work)
  4 Assignments are programming project
    These can be done in a group of 2 students
    Programming assignments will require 15-20 hours
    and strong Java programming skills

14%    Midterm 1       March 11
22%    Final Exam      May 11
Grading Policy

• Your final grade will be determined based on the scale shown below. Score Range  Grade / Individual

| Score Range | Grade |
|-------------|-------|
| [96 -- 100]  | A     |
| [91 -- 95]   | A-    |
| [86 -- 90]   | B+    |
| [81 -- 85]   | B     |
| [76 -- 80]   | B-    |
| [71 -- 75]   | C+    |
| [66 -- 70]   | C     |
| [61 -- 65]   | C-    |
| [56 -- 60]   | D+    |
| [51 -- 55]   | D     |
| [00 -- 50]   | F     |
Late submission policy for assignments

• 1 day late  10% penalty
• 2 days late  25% penalty
• 3 days late  50% penalty

No assignments accepted after 3 days.

All submission must be made using the online system.

Assignments are due by 11:55 PM on due date.
Scholastic Dishonesty

• You must be fully cognizant of the following policies regarding academic integrity and scholastic dishonesty.

All students are expected to abide by the "Student Conduct Code". See Board of Regents Student Conduct Code. Please be cognizant of the following documents related to policies on scholastic dishonesty.

• CSE Department Academic Conduct Policies for Students in CSci Classes

• All cases will be reported to the Office for Student Conduct and Academic Integrity (OSCAI).
Scholastic Dishonesty

Please see the following important documents related to academic integrity and scholastic dishonesty:

• FAQ on Academic Conduct in Computer Science

• Office for Student Conduct and Academic Integrity FAQ

• Board of Regents Student Conduct Code  Students are expected to abide by the "Student Conduct Code".
Cheating and Scholastic Dishonesty:

- Consulting and seeking help from others (students or non-students) on assignments and exams when asked to do an assignment problem individually.
- Consulting and seeking help from others not in your group (students or non-students) on assignments when asked to do an assignment problem in a designated group.
- Cheating on exams. Consulting others or using any material which is not permitted on the exam.
- Copying material from some source, such as the Internet or books, and presenting it as you own solution or design when asked to solve a problem yourself.
Cheating and Scholastic Misconduct

• Attempt to change an already graded assignment and asking for re-grading of that material.
• Attempts to fabricate the submission date/time of a late assignment to make it appear like an on-time submission.
• Stealing some other student's solution or program.
• Submitting solutions prepared by the TAs and the instructors during the prior years of the course offering.
• Obtaining information through the Internet and submitting it as your own work on an assignment.
• Purchasing a solution for your assignment from someone.
Cheating and Scholastic Misconduct

• All group programming assignments must be done together and each group member must be fully involved in all aspects of programming.
• You are responsible for protecting your assignment files, program code, and data on your personal computer or account.
• Giving access to your personal computer or account to another student thereby enabling the student to access to your assignment or work.
• Helping or abetting another student in cheating or scholastic misconduct.
CSE Lab Acceptable Use Policy

You must be fully cognizant of the CSE Lab Acceptable Use Policy. All CSE public lab users should be familiar with the full content of this document. However, in the interests of brevity, here are the basic ideas:
CSE Lab Acceptable Use Policy

- Do not use your account for illegal, unethical, or unauthorized purposes.
- Protect your data with the correct file permissions, and respect others' privacy.
- Do not share your account and passwords with anybody.
- Contact the system administrators if you have questions, comments, or concerns about CSE's public computing labs.
- Only use resources that have been deliberately allocated to you, i.e., do not try to circumvent security or administrative measures on the systems.
- Become familiar with the system, and avail yourself of all the resources for which you have authorization.
Cheating and Scholastic Misconduct

- Any case of cheating or scholastic misconduct may result in F GRADE. Additionally, the matter would be forwarded to the Office for Student Conduct and Academic Integrity.
Questions?