CS 457/557: Introduction to Distributed Systems

Yao Liu
Class Information

- Instructor: Yao Liu (yaoliu@binghamton.edu)
- Office: P10 Engineering Building
- Office Hour: Tuesday 2:50pm ~ 5:20pm, or by appointments
- Class Website:

- We will use emails for communications; you must have a BU account and check the account for messages periodically, if not daily.
A little bit about my research

• My research focuses on Internet applications, I work in the following areas:
  
  • Internet (Video) Streaming
  • Wireless/Mobile Networking
  • Cloud Computing

• If you are interested in working on projects in system and networking areas, you are welcome to contract me.
Teaching Assistant

• Siyuan Fu
• Email: sfu2@binghamton.edu
• Office Hour: Friday 12pm ~ 2pm
• Location: P17, Engineering Building

• Format subject line as: [cs457] or [cs557]
Why Study Distributed Systems?

• Most real systems are distributed systems
• Distributed systems can provide resource in a way that no one single machine can:
  • Availability
  • Scalability
  • Fault-tolerance
  • …
Learning Objectives

• Understand key concepts in distributed systems:
  • Distributed system architecture, remote procedure call, synchronization, replication, consistency, fault tolerance, ...

• Implement the key concepts:
  • Remote procedure call, distributed hash table, replication, distributed commit protocol, failure detection/recovery
Prerequisites

- CS350 Operating Systems
- Familiar with programming in Linux environment
- Proficiency in high level programming languages such as Java, C++, or Python
- Basic knowledge of computer networking (e.g., TCP/IP, sockets, etc.)
Course Material

• Lecture Notes (posted at class webpage)
• Textbook:
Important Dates

• First class: September 2\textsuperscript{nd}
• Drop without tuition liability: September 12\textsuperscript{th}
• Midterm exam: October 23\textsuperscript{rd} (Tentative)
• Course withdraw deadline: October 31\textsuperscript{st}
• Last class: December 11\textsuperscript{th}
• Final exam: December 18\textsuperscript{th}
Class Grading

• Four components: homework, projects, midterm, final.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
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<tr>
<td>Projects</td>
<td>35%</td>
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<td>Midterm</td>
<td>20%</td>
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<td>Final</td>
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• The letter grading is relative to the rest of the class, but cutoffs will not be higher than:

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<tr>
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<th>Maximum</th>
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Homework and Projects

• Homework assignments
  • must be individual efforts
  • must be typewritten, no hand-written submission
  • usually due in one week before the class
  • no late homework is accepted

• Projects:
  • must be individual efforts
  • *NO credit* if your project does not compile.
  • Unless under prearranged conditions, late projects lose 10% credit per day within 3 days after the respective deadlines and will not be accepted 3 days after due.
Exams

• One midterm exam and one final exam
  • close book
  • one-page cheat sheet is allowed
  • final exam is cumulative

• No early exams
  • Missed exams must be arranged with the instructor at least a week **BEFORE** the exam date.
Classroom Rules

• No cell phones, open laptops or other electronic devices during class lecture and discussion times
Your responsibilities

• Understand the lecture and reading materials
• Attend office hours if needed
• Uphold academic integrity
  • Don’t cheat or help others cheat
  • Don’t copy homework from others or off the web
  • Don’t copy code from others or off the web
  • Don’t paraphrase code from others
  • Don’t post code on discussion boards
• Turn in your assignments and projects on time
• Check Blackboard, class webpage, and email regularly