

CS 457/557: Introduction to Distributed Systems

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 - a bit more in a second
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- When you email us, please be sure to put
- **[CS457]** or **[CS557]** in the email subject line

A little bit about my research

- I work in the following research areas:
 - Mobile and Cloud Computing
 - Internet Content Delivery
 - Internet Measurement
 - Distributed Systems
- If you are interested in working on projects in system and networking areas, you are welcome to contact me.

About this class

- Distributed systems are ubiquitous
- Focus
 - Fundamental concepts and key challenges underlying distributed systems
 - Designing and writing moderate-sized distributed applications

What you will learn

- Basic concepts underlying the design, implementation, and management of distributed systems
 - Distributed system architecture, remote procedure call, synchronization and coordination, distributed agreement, concurrency control, replication, consistency, and fault tolerance.
- Programming assignments provide an opportunity to implement some of 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 at least one of the following high level programming languages:
 - Python (preferred), C++, and Java
- Basic knowledge of computer networking, including TCP/IP, socket programming, etc.

Class information

- Course materials will be uploaded to myCourses.
 - Lecture slides,
 - Additional reading material,
 - Self-testing homework assignments,
 - Programming assignments,
 - etc.
- Announcements will be sent via myCourses.
- myCourses announcements are automatically sent as emails to your BU email; you must check the your BU email for messages daily.

Course material

- Lecture slides (posted on myCourses)
- There is no required textbook
- Recommended textbooks:
 - **TBook: Distributed Systems: Paradigms and Principles**, Andrew Tannenbaum and Maarten van Steen, Prentice Hall, 2nd Edition, 2007
 - **CBook: Distributed Systems: Concepts and Design**, George Coulouris, Jean Dollimore, Tim Kindberg, and Gordon Blair, Addison-Wesley, 5th edition, 2011
- Research literature
 - Each lecture will be supplemented with articles from the research literature
 - posted on myCourses

Class grading

- Four components: class participation, programming assignments, quiz, final exam.

Class Participation	10%
Programming Assignments	40%
In-class Quizzes	25%
Final Exam	25%

- The letter grading is relative to the rest of the class, but cutoffs will not be higher than:

	A: [100, 92]	A-: (92, 90]
B+: (90, 88]	B: (88, 82]	B-: (82, 80]
C+: (80, 78]	C: (78, 72]	C-: (72, 70]
	D: (70, 60]	
	F: (60, 0]	

Class participation

- Attendance
 - Each student can have **up to two** un-excused absences
 - After that, each un-excused absence will be counted against your class participation credit
- Participation in discussions

Self-testing homework assignments

- Self-testing, no need to submit, and will not be graded
- Solution to homework assignments will be released one week later
- You are expected to complete the homework problems by yourself and compare your solution with the solution released

Programming assignments

- There will be both individual and group programming assignments
- We reserve the right to use MOSS to detect plagiarism in the assignments
 - <https://theory.stanford.edu/~aiken/moss/>
- Graded on CS REMOTE computers: remote.cs.binghamton.edu
 - Computers in G7/Q22 should have the same environment as these REMOTE computers
- *NO credit* if your code does not compile on these REMOTE computers
- Unless under pre-arranged conditions, late submissions lose 10% credit per day within two days after the respective deadlines and will not be accepted two days after due.

Quiz

- There will be three quizzes
- Each quiz will cover disjoint material and will not be cumulative
- In-class, about 50 minutes long
- closed book, closed notes

- No early quiz
- No make up quiz

Final exam

- Closed book, closed notes
- Final exam is cumulative
- No early exam
- Missed exam must be arranged with the instructor at least a week **BEFORE** the exam date.

Important dates

- First class: August 22
- Add/Drop deadline: September 5
- Quiz 1: Week of September 24-28 (**tentative**)
- Quiz 2: Week of October 22-26 (**tentative**)
- Course withdraw deadline: October 30
- Quiz 3: Week of November 12-16 (**tentative**)
- Last class: December 7
- Final exam: Week of December 10-14

Keys to doing well

- Come to class
 - Lecture material is the basis for quizzes and exam
 - Practice problems in class will help you learn key concepts
 - Cannot get class participation credit if you don't show up...
- Ask questions
 - In class, office hours, or email (to me or TA)
 - Inevitably, you don't understand something. It is probably my fault, but you can help.
 - I have a habit of going a little faster than I should sometimes. Questions help set the pace.

Keys to doing well

- Start programming assignments early!
 - This course is programming-intensive
 - There is not enough time to finish them if you start three days before the deadline
 - I bet there will be a strong correlation between when you start and what grade you get

Academic honor policy

- Students are required to strictly follow the rules and guidelines laid out in the Watson School Student Academic Honesty Code.
- <http://www.binghamton.edu/watson/about/honesty-policy.pdf>
- Please review the document and make sure that you understand it.
- Cheating and copying will NOT be tolerated.

- Each programming assignment submitted by the student should include a file, STATEMENT, containing the following statement followed by the student's full name:
- “I have done this assignment completely on my own. I have not copied it, nor have I given my solution to anyone else. I understand that if I am involved in plagiarism or cheating I will have to sign an official form that I have cheated and that this form will be stored in my official university record. I also understand that I will receive a grade of **0** for the involved assignment and my grade will be reduced by one level (e.g., from A to A- or from B+ to B) for my first offense, and that I will receive a grade of **“F” for the course** for any additional offense of any kind.”

- Each quiz and exam will have the following statement on the first page:
- “I understand that if I am caught copying or talking during the exam, I will have to sign an official form that I have cheated and that this form will be stored in my official university record. I also understand that I will receive a grade of **0** for the involved exam and my grade will be reduced by one level, and that I will receive a grade of **“F” for the course** for any additional offense of any kind.”

Your responsibilities

- Understand the lecture and reading materials
- Attend office hours if needed
- Uphold academic integrity
- Complete self-testing homework assignments before solutions are released
- Turn in your programming assignments on time
- Check myCourses and BU email regularly