

14-736: DISTRIBUTED SYSTEMS

SPRING 2019 (KESDEN)



SOCRATIVE

- <https://api.socrative.com/rc/9754eN>

COURSE DESCRIPTION

- This course explores both foundational and contemporary topics in distributed systems, such as communication, coordinating time, synchronization, consensus, impossibility of agreement, replica management, file systems, distributed SQL and noSQL databases, CAP, ACID, BASE, distributed hashing, anonymous communication, models of computation, and higher-level tools. The course project work focuses on the implementation of scalable, fault-tolerant distributed systems.
- In other words: We learn how to cooperate in an environment where communication is constrained and resources are partitioned.

MEETING TIMES

- Lecture: 5:00pm -6:20pm ET Mondays and Wednesdays(CMU-PGH CIC-DEC)
- Lecture: 2:00pm -3:20pm PT Mondays and Wednesdays (CMU-SV B23-118)

TEXTBOOK

- There are a ton of good resources to support learning. One of my favorites is Wikipedia.
- Some people like textbooks. There are plenty of good ones out there. My present favorite is:
 - Tanenbaum and Van Steen, Distributed Systems: Principles and Paradigms, Creative Space Publishing, 2006.

GREGORY KESDEN

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- gkesden@skype, gkesden@Hangouts/GChat, gkesden@Messenger, etc
- Office: INI 124 (Henry Street)
- Office hours: <http://www.andrew.cmu.edu/~gkesden/schedule.html>
- **I'm here to help! Contact me any time!**

[HTTP://WWW.ANDREW.CMU.EDU/~GKESDEN/SCHEDULE.HTML](http://www.andrew.cmu.edu/~gkesden/schedule.html)

Gregory Kesden's Schedule (Spring 2019)

	Monday	Tuesday	Wednesday	Thursday	Friday	
10:00 - 10:30 AM	Often Available	Walking To Class	Often Available	Walking To Class	Often Available	
10:30 AM - 12:00 PM		14760		14760		
12:00 - 1:00 PM	Lunch	Lunch	Lunch	Meeting		
1:00 - 1:30 PM	Often Available	Often Available	Often Available	Lunch		
1:30 - 2:30 PM	Office Hours	Office Hours		Meeting		
2:30 - 3:00 PM				Office Hours		
3:00 - 4:00 PM	Often Available	Often Available		Often Available		
4:00 - 4:30 PM						
4:30 - 5:00 PM	Walking To Class	Often Available	Walking To Class			Often Available
5:00 - 5:30 PM	14736	Walking To Class	14736	Walking To Class		
5:30 - 6:00 PM						
6:00 - 6:30 PM		Often Available	14760	Often Available		14760
6:30 - 7:30 PM	Often Available		Often Available			
7:30 - 8:00 PM	Often Available	Often Available	Often Available	Often Available		

LION GUARDING MY OFFICE



Emory Sen
INI Receptionist

(Hint: She's actually really Helpful and friendly and will gladly buzz you in and Help you find my office)

TEACHING ASSISTANTS

- Saksham
- Mingjie “Jack” Zhao
- Office hours: TBA
- Email: staff-736@lists.andrew.cmu.edu

ONLINE RESOURCES

- Website: Course schedule, materials, announcements, etc
 - <http://www.andrew.cmu.edu/course/14-736-sl9/>
- Canvas: Used for turning in work
 - <https://www.cmu.edu/canvas/>
- Piazza: Used for discussion among fellow students
 - <https://piazza.com/class/jqwv0skcspj72e>
- Email list: Used to get rapid answers from course staff
 - staff-736@lists.andrew.cmu.edu

ASSIGNMENTS AND GRADING

- Exams: 45% (midterm and final count equally, 22.5% each)
- Homework: 10% (All homeworks count equally, 2.5% each)
- Project: 45% (All projects count equally)

IMPORTANT NOTE ABOUT GRADING

- Because of the importance of understanding both the theoretical and hands-on elements of systems, students must pass all three components of the course (homeworks, exams, and the projects) in order to receive a passing grade for the course. This does not affect the actual letter grade assignment unless one of the components is not completed to a passing standard.

HOMEWORK

- Homework questions will be released alongside lecture materials, such as slides and notes.
- You should do them as part of your continuous review of lecture materials and other studying.
- The questions will be collected and graded four times during the semester.
- The goal is to help you to consistently engage with the material, your peers, and the course staff, rather than giving you the work all at once periodically, which is less valuable for learning and more challenging for time management.

EXAMS

- Midterm: About 1 hour (80 minute period)
- Final exam: About 1 hour (80 minute period)
 - Last class period
 - Not intentionally cumulative, but some material naturally builds.
 - The exams are designed to be completed in about an hour during a 1.5 hour exam period.
- Sample exams will be released.
 - But, they will be released very shortly before the exam to provide a mechanism to put you at ease with the question format and tune-up your studying.
 - They are not intended as study guides or resources

PROJECTS (TENTATIVE PLAN, MAY CHANGE)

- RMI Facility
- Raft Consensus and Key-Value Store
- Distribute File System
- Block Chain Ledger

GRADE CORRECTIONS

- Please bring any grading concerns to the staff's attention ASAP
 - Help learn material and expectations
 - Get points back
 - No harm in asking!
- Staff reserves the right to decline to award points if request isn't timely (see syllabus)
 - See syllabus for details.
 - Policy isn't invoked very often. We like correcting our mistakes and helping you learn!
 - But, can be used to redirect "learning-free threshold pushing" when folks are tired and grade-focused at the end of the semester.

COLLABORATION/ACADEMIC INTEGRITY

- If you turn it in, we expect you did it by yourself unless you attribute the work to others
- Credit all persons and resources consulted or involved. Always.
- Use of resources other than those permitted for the project may result in grade penalties
 - Use of uncredited resources, permitted or not, may result in an Academic Integrity Violation
 - AI violations come with potential grade penalties, as well as program and institutional sanctions
 - AI violations result in automatic loss of scholarship for INI students
- Any questions? Just ask!

LATE WORK?

- 5 “Late Days”
 - Spend as you choose, whole days only
 - Can’t share with partner (but can fork and turn in separately, appropriately documented)
 - Not “Procrastination days”. Covers trips, illnesses, etc.
- Major life event?
 - Speak with your academic advisor, faculty advisor, student life representative, or other student official ombudsman-type. We’ll work it out from there.

ELECTRONICALLY MEDIATED COMMUNICATION

- No electronically mediated communication in class (email, Web surfing, etc)
 - Includes course web site, Piazza, Canvas, related resources on Web, etc.
- Bring paper and pen/pencil.
 - If there are violations, electronics won't be permitted
- We may experiment with Socrative or other interaction tool.
 - When explicitly permitted, and only as explicitly permitted, such things are okay.

RECORDING PROHIBITED

- No audio or video or other high-fidelity recording of class is permitted
 - This is to protect student privacy
- Audio and video may be recorded incidental to the telecast across campuses from CMU-PGH to CMU-SV and vice-versa.
 - These recordings will not necessarily be available to you
 - They might, or might not, be made available a few days before exams
 - This depends upon attendance. If attendance is low, they likely won't be made available.
 - They may be made available only to those who regularly attend class, etc
 - If, how, and when to release such recordings is up to the instructor
 - These recordings may not be used other than via the official players
 - They may not be separately archived, transmitted, etc.

MOST IMPORTANT THING: YOUR WELL-BEING AND HAPPINESS

- Everyone gets crunched sometimes! Everyone!
 - Take care of yourself, Watch out for friends
 - Take breaks to get perspective. Get sleep. Eat well. Exercise. Socialize. Etc. Use available resources
- Counseling and Psychological Services (CaPS)
 - 412-268-2922, <https://www.cmu.edu/counseling/>
- RE:SOLVE Crisis Network
 - 888-796-8226, <http://www.upmc.com/Services/behavioral-health/Pages/resolve-crisis-network.aspx>
- University police:
 - 412-268-2323
- Faculty member (me or another), faculty advisors, academic advisors, student life staff, academic deans, student life deans, etc. It is a supportive community!
- If you, or somebody you know, needs advice or support, it's easy to ask: "Greg [or whomever], I think I'd like some advice".