

CS138: Distributed Systems

Course Information and Syllabus

Semester II, 2019–2020

Lectures	I hour 20 min: 10:30–11:50 on Tuesdays and Thursdays
Online Location	ZOOM Email for Registration.
Lecture Notes	http://www.cs.brown.edu/courses/cs138/s20/syllabus.html A recording of each lecture and slides will be placed online by the end of the day of the lecture.
Text	<i>Distributed Systems: Concept and Design</i> , by Colouris, Dollimore, Kindberg, Blair, 2011
Prerequisite	CS 33 or CS32
Instructor	Theophilus Benson (tab@cs.brown.edu)
Office	CIT 327
Office Hours	<i>Tuesdays 4-5 and Wednesdays 11-12, or by appointment</i>
Head TAs	Alex Yu (alexander_yu@brown.edu) Ma Ziyin (zma17@cs.brown.edu)
UTAs	David Oyeka(doyeka@brown.edu) Hannah Haas (hhaas1@cs.brown.edu) Hanyan Liu (hliu77@cs.brown.edu) Zhuoli Jiang (zjiang17@brown.edu) John Lhota (john_lhota@brown.edu) Sherry Yang (yyang152@cs.brown.edu) Thomas Wang (swang173@cs.brown.edu) Yuqi Chai (ychai4@cs.brown.edu)

Requirements	<p>4 Programs (50%)</p> <p>4 Homeworks (20%)</p> <p>Online quiz (5%)</p> <p>Online quiz (5%)</p> <p>Final Exam (10%)</p> <p>Class Participation (10%)</p>
Time Requirements	<p>In addition to three hours per week in class, you will spend 10 to 20 hours per week on homeworks and programs.</p>
Goals	<p>We will teach you the theoretical underpinnings of distributed systems and will teach you to write programs that run on multiple, geographically dispersed computers and that are tolerant of many sorts of faults.</p> <p>You will do problem sets based on the lectures that will help you grasp and apply the theoretical material. You will do a sequence of programming projects, working in groups of two that not only apply what's covered in lectures, but give you experience in coding and debugging distributed systems.</p> <p>We have you write the programs in a language that's probably new to you, Go, chosen because it allows you to focus on the distributed aspects of a system without getting bogged down in other details.</p>
All Are Welcome	<p>Our intent is that this course provide a welcoming environment for all students who satisfy the prerequisites. Our TAs have undergone training in diversity and inclusion; all members of the CS community, including faculty and staff, are expected to treat one another in a professional manner.</p> <p>If you feel you have been treated unprofessionally by any of the course staff, please contact Prof. Benson (the instructors), Prof. Cetintemel (the department chair), or Laura Dobler (the department's coordinator for diversity and inclusion initiatives). We take all complaints about unprofessional behavior seriously</p>

Grading	<p>Homeworks, exams, and programs are given numerical grades; “curving” is done on a per-assignment basis.</p> <p>The final course grade is the weighted average of the “curved” homework, exam, and program grades. The first program is 10% of your course grade; each of the others is 13.33% the online quizzes are 10% of your course grade; the final exam is 10%. Homework is 20% of your course grade.</p>
	<p>Please note that your assignments will be graded by the TAs, most of whom are undergraduates. If you have a question about the grading of an assignment, please bring it up first with the TA who graded it. If your question is not resolved to your satisfaction, then bring it up with Prof. Benson.</p> <p>Regrades: Regrades can be requested at most one week after the return of grades. The exceptions are the final – for these you will only get 24hours. During regrades, you may get points back or lose points -- regrades may result in grades going up, down, or staying the same.</p>
Incomplete Policy	<p>We expect everyone to complete the course on time. However, we certainly understand that there may be factors beyond your control, such as health problems and family crises, which prevent you from doing so. If you feel you cannot complete the course on time, please discuss with Prof. Benson the possibility of being given a grade of Incomplete for the course and setting a schedule for completing the course over the summer.</p>
Due Dates	<p>All assignments are submitted electronically (via department machine handin scripts or GitHub for programming projects and via Gradescope for written homework assignments) due at 11:59 pm.</p>

Late Policy	<p>The late-day policy described here applies to all late days other than those due to illness and religious holidays. Thus days missed because of job interviews are included in the late-day policy.</p> <p>Everyone is allowed a total of four late days on projects free of charge, but no more than three late days may be applied to any one assignment. Except Puddlestree, you will only get two days. Beyond that, you are penalized 10% of the assignments total worth for each day it is late. So, if the assignment is out of 100 point and you get 88 points but are one day late: then it becomes 78 points.</p> <p>We will apply late days to assignments in an optimal fashion (with respect to your grade). Note that late penalties are applied after grades have been curved.</p> <p>If you are ill, you may get an extension without using the late days. Please get a note from either health services or the office of student life and contact one of the instructors.</p>
	<p>If you must miss an assignment deadline because of a religious holiday, you may also get an extension without using late days; please contact one of the instructors. Please contact the instructors within the first three weeks of the course to declare such conflicts and we will plan accordingly.</p>
Accommodations	<p>If you feel you have physical, psychological, or learning disabilities that could affect your performance in the course, we urge you to contact SEAS (https://www.brown.edu/campuslife/support/accessibility-services/). We will do whatever we can to support accommodations recommended by SEAS.</p>
Mental Health	<p>Being a student can be very stressful. If you feel you are under too much pressure or there are psychological issues that are keeping you from performing well at Brown, we encourage you to contact Brown's Counseling and Psychological Services (CAPS: https://www.brown.edu/campus-life/support/counseling-andpsychological-services/). They provide confidential counseling. In addition, the deans of student life as well as the deans of the college can provide notes supporting extensions on assignments for health reasons.</p>

COVID Specific Changes:

Midterm Cancellation and Introduction of online quizzes.

There will be two short timed quizzes. Each will be 30 minutes long. These will be administered using Canvas. These quizzes are crucial as a method for making up the exam rather than making the HomeWorks larger and harder, because they will also help you get acquainted to the format that the final will be in. For this quiz, each student will have 24 hours after they are assigned to complete them. These online quizzes are intended to be open-book but completed independently, each student will sign an honor code before each quiz.

The days for these are:

	Date		Lectures Covered
Online Quiz 1	Assigned: 04/15/20	Due: 04/16/20	L1-L9 (Networking, Time, load balancing, Distributed Hash Tables)
Online Quiz 2	Assigned: 04/29/20	Due: 04/30/20	L10-L15 (Consistency: active/passive. Note: this doesn't include lazy replication)

Asynchronous Class participation.

Prior to COVID, class participation was based on TopHat which required synchronous access. We have had seven classes with TopHat questions: in terms of grading, each class is weighed equally and are focused on participation not correctness. The correctness was to help people understand the accuracy of their responses. I have changed the setting on TopHat to weigh each day equally. Additionally, I have spoken to several of you during and after class about TopHat related issues and glitches.

Moving forward, class participation will be based on post (or pre-) class questions. These will be multiple choice questions - generally between one and four questions. These questions are meant to be worked on individually and will be based on correctness. With the schedule extended to May 5th, we will have nine of these asynchronous class participation forms.

The final class participation grade will be based on the TopHat questions and these asynchronous questions. Due to TopHat issues and potential COVID related disruption, to get full participation credit you will not be required to answer all questions. To get full participation, students should aim for 70% of the participation points.

Homework dates:

	Date	
HW3	Assigned: 04/08/20	Due: 04/14/20
HW4	Assigned: 04/29/20	Due: 05/05/20

Lab Related Changes:

Lab 3 will be cancelled, we will provide documentation for Zookeeper and primers for those interested in using Zookeeper in Puddlestore.

Project dates:

	Date	
Raft	Assigned:04/01/20	Due:04/22/20
Puddlestore	Assigned: 04/22/20	Due: 05/05/20