CS271: Introduction to Distributed Computing

General Information

- **Instructor:** Amr El Abbadi **Office hours:** Mon, Wed: 10:45am–12:00pm **Location:** 3115 HFH
- **Teaching Assistant:** XXX **Office hours: Location:**

Format

In this class, I will present some of the fundamental topics that form the basis of research in Distributed Systems and Computing. My goal is to get you up to speed on the foundations so that by the end of the quarter, you are ready to launch into Cloud Computing and Blockchain. The topics we will cover are in no way exhaustive and, of course, reflect my own subjective biases and some of my current interests. I will not be using a textbook. However, you will be expected to read several papers, which I will either hand out or post a link to on Piazza.
I plan to have about 3 in-class one hour quizzes on Jan 22, Feb 19, and Mar 12. Be sure to come to class and not miss these quizzes. There are NO makeups.
There will also be 1 programming assignment and a final project to further explore some of the basic ideas discussed in class. The programming assignment will be individual, while the final project will be in teams of two. The final project demo day will be on Friday March 7. There is no final exam during finals week.
This term we will be using Piazza for class discussion. Find our class signup link at:
https://piazza.com/ucsb/winter2025/cmpsc271

Supplementary Textbooks

- Distributed Operating Systems and Algorithms by Chow and Johnson, Addison-Wesley, Reading, MA (1997).
- Distributed Systems: Concepts and Design by Coulouris, Dollimore and Kindberg, Addison Wesley 2005.

Policies and Quizzes

The course grade will be based on the quizzes and programming assignments/project. Requests for quiz regrades must be submitted within 1 week of their return. For the programming assignments, each late calendar day will result in a 5% deduction penalty, with maximum of 3 days. Finally, grades will be approximately allocated as follows: quizzes: 51%, programming assignments/project: 49%.

A Sample of the Topics Covered

1. Time and Global States
2. Coordination, Mutual Exclusion and Agreement
3. Fault-Tolerance: Replication.
4. Byzantine Agreement: Paxos, Raft, etc.
5. Misc state of the art papers with emphasis on Cloud Computing and Blockchain