

CS 561, Administrative Lecture

Fall 2026

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Today's Outline

- Course logistics
- About the class
- Prerequisite material

About Me

- Grew up in Georgia, USA; Lived in Palo Alto, Kyoto, and Seattle.
- Work in theoretical computer science: provable security for distributed algorithms
- Graduated dozens of PhD students, many recruited from this class. They have found industry positions at Amazon, Facebook, Google, and postdocs/academic positions at Yale, U. Virginia, Drexel, MSU, Loughborough.
- **Hearing: I am completely deaf in high frequency ranges**
 - If I mishear you, please **rephrase** your question/comment.
 - I often depend on lip-reading. If I cannot understand a question, I may ask you to write or type it. I definitely want to respond to your questions!
 - I will not hear a high-pitched alarm.

About Class

- Topics covered: randomized algorithms and data structures; streaming algorithms; divide and conquer; induction and recurrences; dynamic programming and greedy algorithms; amortized analysis; graph algorithms; NP-hardness and approximation algorithms; and iterative methods
- This class assumes knowledge of proofs (direct proof, proof by induction, contradiction, and case analysis), asymptotic notation and recurrence relations, basic algorithms (such as sorting and search), and data structures (such as binary trees).
- CS 361/362 or an equivalent undergraduate algorithms course is a prerequisite.
- You are **wasting your time here** if you haven't had the prereq material. Like sitting in on a Japanese III class if you haven't taken Japanese I and II.

Math and Proofs

- Class uses a mathematical methodology (theorems and proofs)
- This class is challenging, especially if you haven't done proofs before.
- Best way to study is to **solve problems, and re-derive proofs**
- This mathematical methodology is an **extremely** important tool in computer science
- Much of the material was developed in the last several decades. I'm an expert in this area, and even I get stuck and make mistakes.

Administrivia

- Class meets Tuesdays and Thursdays, 12:30–1:45 p.m., in Mitchell Hall, Room 202.
- Course site: www.cs.unm.edu/~saia/classes/561-f26/
- Read the syllabus and join the Fall 2026 CS 561 Piazza.
- Piazza is used for announcements, questions, and discussion of course content. Please use Piazza rather than email.
- Office-hour times and locations are listed on the course site.

Prerequisite Quiz

- A 30-minute prerequisite quiz will be given on Tuesday, August 25.
- It covers material from the prerequisite review slides and relevant textbook appendices.
- The quiz is closed book and closed note, and no electronic devices are permitted.
- Studying will help you recall the prerequisite material and assess your readiness for the course.

Exams

- Exams are closed book and closed note.
- No electronic devices are permitted, including phones, smart-watches, earbuds, smart glasses, or other wearable technology.
- Students may not leave the room after an exam begins. Please use the restroom before the exam starts.
- Exams are recorded by at least two cameras.

Homeworks

- You may discuss homework problems with others and consult outside sources, including AI systems, but you must name collaborators and cite sources or tools used.
- Follow the **Star Trek rule**: wait at least 30 minutes after any discussion or consultation, then write your solution alone without looking at another solution, source, or AI output.
- Worked solutions will not generally be distributed. I am happy to help if you are stuck via Piazza, office hours, or lecture.

Homework and Pedagogy

- For approximately every five hours of homework, post on Piazza or speak in lecture or office hours at least once.
- Ping should be **a question, comment, or your partial solution to a problem.** Please do not struggle fruitlessly for hours and hours on homework without reaching out for feedback.
- I use *(faded) worked examples* and *productive failure* in lectures and office hours to help you build independent problem-solving skills.
- You will need to balance working hard on homework/exercises yourself, with asking for help when stuck.

How to Succeed in 561

- Work with a group! But remember the Star Trek rule.
- Learn to use $\text{\LaTeX}$.
- Overleaf or another $\text{\LaTeX}$ editor can be used to write homework.
- Piazza supports $\text{\LaTeX}$ for mathematical questions and posts.
- Ping early, ping often

Todo

- Sign up for Piazza and review the syllabus.
- Prepare for the Tuesday, August 25 prerequisite quiz: review the prerequisite slides and textbook appendices carefully, and solve problems to assess your readiness.

— This Week's Outline —

- Prerequisite material lightning review
- Randomized algorithms and data structures