CS 561, Lecture 0

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Today’s Outline

- About Class
- Prereq Material
About Me

- Grew up in rural Georgia; Lived in Palo Alto, Kyoto, and Seattle
- Work in theoretical computer science: provable security for distributed algorithms
- Have two graduate students, Abhinav and Diksha, both recruited from this class
- Hearing: I am completely deaf in high frequency ranges
  - If I mishear you, please **rephrase** your question/comment
  - I can’t hear whispering. For questions during exams, please write them down or ask me outside.
  - I will not hear any high pitched alarm
About Class

- Topics covered: Randomized Algorithms and Data Structures; Induction and Recurrences; Dynamic Programming and Greedy Algorithms; Graph Algorithms; NP-Hardness and Approximation Algorithms; Linear Programming and Gradient Descent
- This class heavily uses proofs. If you are not familiar with them (e.g. direct proof, proof by induction, contradiction, etc.), you should take CS361/CS362
- You are wasting your time here if you haven’t had the prereq material. As useless as sitting in Japanese III class if you haven’t taken Japanese I and II.
About Class

- Topics covered: Randomized Algorithms and Data Structures; Induction and Recurrences; Dynamic Programming and Greedy Algorithms; Graph Algorithms; NP-Hardness and Approximation Algorithms; Linear Programming and Gradient Descent
- This class heavily uses proofs. If you are not familiar with proofs (e.g. direct proof, proof by induction, contradiction, etc.), asymptotic notation, and recursion, you should take CS361/CS362.
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- Class uses a mathematical methodology (theorems and proofs)
- Will be challenging, especially if you haven’t used it much.
- We’ll mostly be covering material that has only been discovered in the last few decades - and near the end of the class, in the last decade. I’m an expert in this area, and even I get stuck and make mistakes.
- Best way to study is to solve problems, and re-derive proofs
- This mathematical methodology is an extremely important tool in computer science
• Web page
• Syllabus
• Piazza (todo: sign up ASAP)
• Please: no laptops in class; All tests will be closed book and closed notes except for 2 pieces of notebook paper.
• There will be a 30 minute pre-req quiz next Tuesday - covers prereq material including material in PreLecture 1 and 2, and Appendices of our textbook. Will count as a hw grade, and will determine your eligibility to take class.
Todo

- Sign up for Piazza; review syllabus
- Todo: Review Prereq slides and Appendices carefully, solve problems, and prepare for quiz
Today’s Outline

- Prereq Material Lightening Review
- Randomized Algorithms and Data Structures