CS 277: Algorithms and Data Structures for Data Science

Harsha Tirumala[1] Mahesh Viswanathan[2]

[1]harshast@illinois.edu

[2]vmahesh@illinois.edu

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Instructional Staff

- Instructors
  - Harsha Srimath Tirumala (harshast)
  - Mahesh Viswanathan (vmahesh)
- TAs and CAs: To be announced soon.
- Office Hours: To be announced soon.

Electronic Bulletin Boards

- Webpage: General information, course policies, lecture notes. https://courses.grainger.illinois.edu/cs277/sp2026
- Ed: Announcements, online questions and discussion, contacting course staff. https://edstem.org/
- PrairieLearn: All assigned work. https://us.prairielearn.com/

Resources for class material

- Prerequisites: STAT 207 and Calculus. Prior programming experience in Python from STAT 207 and STAT/CS 107
- Textbooks: Available through university library.
  - Algorithms by Dasgupta, Papadimitriou, Vazirani
  - Data Structures and Algorithms in Python by Goodrich, Tamassia, and Goldwasser
- Video Recording of Lectures: See course website for link.

Grading Policy: Overview

Total Grade and Weight

- Labs: 30%
- Homework: 25%
- Midterms: 30% (2×15)
- Finals: 15%

Labs

- Every week Labs are on Fridays 3:30pm to 4:45pm in 3039 CIF
- Autograded programming and algorithm exercises on PrairieLearn
- Start working during Friday meeting and complete by Thursday the following week
  - Allowed to submit one lab upto a week late; required to inform us within 24 hours of the homework deadline.
  - Any lab can be submitted one day late for 90% credit
- 11 in total
- Schedule on course webpage

Homework

- One homework every two week: Assigned on Monday and due two weeks later on Monday.
  - Allowed to submit one homework upto a week late; required to inform us within 24 hours of the homework deadline.
  - Any homework can be submitted one day late for 90% credit
- Solved in groups of size at most 3 on PrairieLearn
- 6 in total
- Homework schedule on course webpage.

Examinations on CBTF

- First Midterm: February 26 to March 1 (50 minutes)
- Second Midterm: April 2 to April 5 (50 minutes)
- Final Exam: May 7 to May 14 (50 minutes)

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- No conflict exam offered unless you have valid excuse.

Course Overview

- How to solve computational problems efficiently and communicate that your solution is effective and correct
  - Different algorithms can solve a computation problem with drastically different performance
  - Learn how to break a complex problem into subproblems, use abstraction to identify algorithmic solutions
  - Algorithmic paradigms: divide and conquer, dynamic programming, greedy, ...

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- Not a programming class though you will be expected to write small snippets of Python code