CS483 Design and Analysis of Algorithms

Administration and Getting Started

Instructor: Fei Li

`lifei@cs.gmu.edu` with subject: CS483

Office hours:
Engineering Building, Room 5326, Thursdays 4:15pm - 6:15pm or
by appointments

Course web-site: `http://cs.gmu.edu/∼lifei/teaching/cs483_fall10`

About this Course

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(from University Catalog 2009-2010) Analyzes computational resources for important problem types by alternative algorithms and their associated data structures, using mathematically rigorous techniques. Specific algorithms analyzed and improved.

Prerequisites

1. CS 310 (Data Structures)
2. CS 330 (Formal Methods and Models)
3. MATH125 (Discrete Mathematics I)

Weekly Schedule

- ▶ When: Tuesdays and Thursdays 3:00pm - 4:10pm
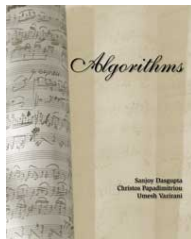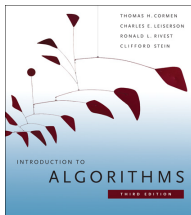- ▶ Where: Art and Design Building L008

Required Textbook and Recommended Book

Introduction to Algorithms

Introduction to Algorithms by Thomas H. Cormen (Dartmouth), Charles E. Leiserson and Ronald L. Rivest (MIT), Clifford Stein (Columbia), 3rd Edition

Algorithms

Algorithms by Sanjoy Dasgupta (UCSD), Christos Papadimitriou (Berkeley), and Umesh Vazirani (Berkeley)

How to Reach Me and the TA

1. Instructor: Fei Li
2. Email: lifei@cs.gmu.edu
3. Office: Room 5326, Engineering Building
4. Office hours: Thursday 4:15pm - 6:15pm or make an appointment

1. Teaching Assistant: Yanyan Lv
2. Email: ylu4@gmu.edu
3. Office: Room 4456, Engineering Building
4. Office hours: Wednesday 10:00am - 12:00noon

Topics To Be Covered

1. Function growth: O, Θ, Ω notation
2. Recurrence relations (divide-and-conquer)
3. Probabilistic analysis; randomized algorithms
4. Dynamic programming
5. Greedy algorithms
6. Amortized analysis
7. Graph algorithms: BFS/DFS
8. Minimum spanning tree
9. Shortest paths
10. Maximum flow

Making the Grade

Grading Policy

1. Your grade will be determined 45% by the take-home assignments, 20% by a midterm exam, and 35% by a final exam
2. Probably there will be 9 assignments; each assignment deserves 5 points
3. Hand in hard copies of assignments in class. No grace days for late assignments.
4. All course work is to be done independently. Plagiarizing the homework will be penalized by maximum negative credit and cheating on the exam will earn you an F in the course.

Tentative Grading System

A (≥ 85), B ($\in [70,\ 85)$), C ($\in [60,\ 70)$), D ($\in [50,\ 60)$), and F (< 50)

Any Questions?