

COURSE SYLLABUS

CS 320

Analysis of Algorithms

Instructional Materials

Required Instructional Materials:

Introduction to Algorithms, Third Edition
Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein
The MIT Press, ISBN 0-262-03384-4, September 2009

Optional Instructional Materials:

Course announcements, class notes, study aids, and supplementary reading will be posted on the eCampus course site.

Assessment

Short Descriptions of and Grading Criteria for Major Assignments/Assessments:

Homework Policy

Homework problems will be distributed to the class on a regular basis. Students may discuss homework with other students, but each student must write up solutions in their own words, and without assistance from anyone. Homework will be collected, and graded satisfactory/unsatisfactory. Solutions will be discussed in class. The ability to solve homework problems and write appropriate solutions is extremely important for training the student on solving problems of the same type as those presented in class, during quizzes, midterm and final.

Homework Quizzes

Quizzes will assess the student's mastery of the current homework material.

Weight/Distribution of Course Points:

5 Homework Quizzes (10% each), Homework (6%), 1 Midterm (22%), Final (22%)

Mid-Semester Grade:

The Mid-Semester grade is based on Quiz 1 and Quiz 2. This is 20% of the overall course grade.

Expected Timeline of Major Assignments/Assessments and Topics/Units:

Weeks 1 - 3

- Elements of an algorithm
- Elementary data structures
- Growth rate of functions
- Asymptotic order notation
- Time analysis of algorithms

Quiz 1

Weeks 4 – 6

- Divide and conquer technique
- Time analysis of recursive algorithms
- Divide and conquer recurrences

Quiz 2

Weeks 7 – 9

- Priority queues: heaps

Mid-term

- Sorting techniques
- Linear-time sorting

Quiz 3

Weeks 10 – 12

- Relations, graphs, and digraphs
- Topological sort
- Graph traversals: breadth first search, depth first search

Quiz 4

Weeks 13 – 15

- Greedy algorithms
- Dynamic programming

Quiz 5

Final

Final Grading Scale:

- 85% - 100% A
- 75% - 84.99% B
- 65% - 74.99% C
- 50% - 64.99% D
- < 50% F