

CSC325

**Advanced Data Structures &
Algorithm**

**Q141
Syllabus**

Dr BEN CHOI

Description

Advanced data structures and algorithm design. Topics include specialized trees, graphs, sets and tables, advanced searching and sorting, complexity analysis, and algorithm design techniques.

Credits: 3; **Prerequisites:** CSC 220;

Office hours: (to be determined) NH 119, (or by appointment)

Objectives

- To gain knowledge on advanced data structures.
- To be able to design and analyze computer algorithms.

Text

Computer Algorithms: Introduction to Design & Analysis, by Sara Baase and Allen Van Gelder.

Representative Topics

Topics <i>(Some sections may be assigned as reading.)</i>	Reading Chapter	Approximate No. of Weeks
Analyzing Algorithms and Problems	1	1
Data Abstraction and Basic Data Structures	2	2
Sorting	4	1
Selection and Adversary Arguments	5	1
Dynamic Sets and Searching	6	1
Graphs and Graph Traversals	7	2
Graph Optimization Problems and Greedy Algorithms	8	1
NP-Complete Problems	13	1

Grading Plan

Attendance & Class participation Quizzes & Assignments	10%
Projects	15%
Midterm Exam	35%
Final Exam	40%

Final grade may be normalized (or curved). For homework, quizzes, and exams, each student must work independently.

Attendance: Class attendance is governed by university regulations. Class attendance is regarded as an obligation and all students are expected to attend punctually all classes in which they are enrolled. Failure to do so may jeopardize a student's scholastic standing.

Misconduct: Academic misconduct is governed by university regulations. The penalty for cheating and other forms of misconduct may result in an "F" in the course.



Computer Science