COT-5407 Introduction to Algorithms

Catalog Description
Design of efficient data structures and algorithms; analysis of algorithms and asymptotic
time complexity; graph, string, and geometric algorithms; NP-completeness. (3 credits)

Prerequisites
SCIS Graduate Standing

Type
Elective for Graduate Students

Course Objectives
Students will learn techniques for designing efficient algorithms, for elementary analysis
of algorithms, for proving lower bounds, and for proving intractability.

Topics
Part I: Asymptotic Notations, Recurrence, Divide-and-Conquer, Randomized Algorithms
Part II: Sorting and Order Statistics
Part III: Data Structures: Trees, Hash Tables
Part VI: Graph Algorithms
Part IV: Dynamic Programming, Greedy Algorithms, Amortized Analysis
Optional: NP-Completeness

Textbook
Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein,

Grading Policy
Homework (problem sets 1-5): 50%
Quiz 1 (take-home): 0%
Midterm (in-class): 10%
Quiz 2 (take-home): 0%
Final Exam (in-class): 35%
Participation: 5%

Grading Scale

Last Update
Wei Zeng 8/20/2016