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
Required for MSCS
Elective for MSIT and MSTN
Ph.D. students should take COT-6405

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

Topics
Recurrence Relations and Analysis of Algorithms
Incremental and Divide-and-Conquer Algorithms
Sorting and Order Statistics
Lower Bound Arguments
Basic data structures: trees, hash tables, priority queues, union/find
Graphs & Graph Algorithms
Dynamic Programming & Greedy Algorithms
NP-Completeness

Textbook

Last Update
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