COURSE DETAIL

ADVANCED ALGORITHMS

Country
Hong Kong

Host Institution
Chinese University of Hong Kong

Program(s)
Chinese University of Hong Kong

UCEAP Course Level
Graduate

UCEAP Subject Area(s)
Mathematics Computer Science

UCEAP Course Number
216

UCEAP Course Suffix

UCEAP Official Title
ADVANCED ALGORITHMS

UCEAP Transcript Title
ADVANCED ALGORITHMS

UCEAP Quarter Units
4.50

UCEAP Semester Units
3.00

Course Description

This course will study the design and analysis of exact and approximation algorithms for various optimization problems using advanced techniques such as combinatorial methods, probabilistic methods, linear programming, semidefinite programming, and spectral methods. The course also covers spectral algorithms and related convex programs, SDP duality, multiplicative weight update, graph spectrum, eigenvalue interlacing, Cheeger–Alon–Milman inequality, random walks, local graph partitioning, expanders, Laplacian solver, effective resistance, sparsification, matrix scaling, abstract simplicial complex, and random spanning trees.

Language(s) of Instruction
English

Host Institution Course Number
CSCI5160

Host Institution Course Title
ADVANCED ALGORITHMS

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

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