

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 Course Details

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Course Last Reviewed

2021-2022

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