COURSE DETAIL

NETWORK SCIENCE
Country Netherlands
Host Institution Utrecht University
Program(s) Utrecht University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mathematics Computer Science
UCEAP Course Number 179
UCEAP Course Suffix
UCEAP Official Title NETWORK SCIENCE
UCEAP Transcript Title NETWORK SCIENCE
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This class addresses topics from network structure and growth to the spread of epidemics. The course studies diverse algorithmic techniques and mathematical models that are used to analyze such large networks, and give an in-depth description of the theoretical results that underlie them. Some topics are random graphs, giant components, power laws, percolation, spreading phenomena, community detection, basic algorithms for network science, lower bounds and advanced algorithms for polynomial-time problems, sampling algorithms, streaming algorithms, sublinear algorithms, and graph partitioning algorithms.

The course assumes basic skills in algorithms and mathematics: familiarity with basic graph algorithms (shortest paths, flows), and basic understanding of NP-completeness. Work with basic probabilities and some integrals in included.

Language(s) of Instruction
English

Host Institution Course Number
INFOMNWSC

Host Institution Course Title
NETWORK SCIENCE

Host Institution Campus

Host Institution Faculty
Faculty of Science

Host Institution Degree

Host Institution Department
Graduate School of Natural Sciences

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