COURSE DETAIL

INTRODUCTION TO OPTIMIZATION FOR DATA SCIENCE
Country Korea, South
Host Institution Yonsei University
Program(s) Yonsei University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Statistics
UCEAP Course Number 107
UCEAP Course Suffix
UCEAP Official Title INTRODUCTION TO OPTIMIZATION FOR DATA SCIENCE
UCEAP Transcript Title DATA SCIENCE
UCEAP Quarter Units 4.50
UCEAP Semester Units 3.00

Course Description

This course covers the basic concepts and applications of linear optimization, convex optimization, and non-linear & combinatorial optimization. Topics include introduction to optimization, intro to convex optimization, linear programming (LP), least squares (LS), quadratic programming (QP), second-order cone programming (SOCP), semi-definite programming (SDP), duality: connecting convex optimization with non-convex optimization, strong/weak duality, gradient descent ascent (GDA), interior point method (IPM), Lagrange relaxation, applications: unsupervised learning (GAN, Wasserstein GAN), and applications: sparse/low-rank recovery (compressed sensing, matrix completion).

Prerequisites: Calculus, Linear Algebra

Language(s) of Instruction
English

Host Institution Course Number
STA4123

Host Institution Course Title
INTRODUCTION TO OPTIMIZATION FOR DATA SCIENCE

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

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