

Numerical Methods in Continuous Optimization

Applied and Comp Math 923

Section: G100

Term: 2013 Fall

Instructor: Zhaosong Lu

Discussion Topics: Continuous optimization has found many exciting applications in data mining, machine learning, mechanical design, engineering management, statistics and etc. and it has become one of important operations research branches. In this course we focus on the algorithms of continuous optimization. The topics to be covered include: 1) optimality conditions for unconstrained and constrained optimization problems; 2) unconstrained optimization algorithms such as gradient methods, conjugate direction methods, Newton method, quasi-Newton methods; 3) constrained optimization problems and the methods for solving them such as penalty, barrier methods and augmented Lagrangian method; 4) various applications in data mining, machine learning, mechanical design and statistics.

Grading: Homework (70%)

Final (30%)

Required Texts: J. Nocedal and S. Wright, Numerical Optimization, 2nd Edition, Springer, 2006.

Recommended Texts:

Materials/Supplies:

Prerequisite/Corequisite: MATH 240 (Linear Algebra), MATH 251 (Calculus III) or their equivalence

Notes: THE INSTRUCTOR RESERVES

THE RIGHT TO CHANGE ANY OF THE ABOVE INFORMATION.

Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.

This outline is derived from a course outline repository database that was maintained by SFU Student Services and the University's IT Services Department. The database was retired in 2014 and the data migrated to SFU Archives in 2015.