

NATIONAL UNIVERSITY OF SINGAPORE
School of Business
Department of Decision Sciences

DSC3214-Introduction to Optimisation

Lecturer : Prof Tao Yao
Time : 3 hours weekly
Place : TBA
Office Hours : TBA
Session : Semester I, 2014/2015

Prerequisites

This module assumes prior knowledge of multi-dimensional calculus and linear algebra and certain maturity in mathematics. Basic proficiency with *Microsoft Excel* will be assumed.

Course Objective

By the use of mathematical models, the science of optimization seeks to design, improve, and operate complex systems in the best possible way. This course is an introduction to optimization theory, models, and algorithms. It is aimed at providing suitable training for students in science, economics, engineering, and management to understand and solve optimization problems that could arise in their future study and work.

Course Outline

Linear Optimization
Integer Optimization
Network Flows
Stochastic Optimization
Dynamic Optimization
Nonlinear Optimization

References

- Introduction to Mathematical Programming, 4th Edition by Wayne L. Winston and Munirpallam Venkataramanan
- Introduction to Operations Research by Frederick S. Hillier and Gerald J. Lieberman
- Introduction to Linear Optimization by Dimitris Bertsimas and John N. Tsitsiklis
- Linear and Nonlinear Programming, 3rd Edition, by David Luenberger and Yinyu Ye.
- Convex Optimization by Boyd and Vandenberghe

Assessment Methods

Homework	30%
Midterm Exam	30%
Final Exam	40%