

Management Science

Course Name	Course type (credit/hours)	Elective course(3/3)	Course code	I097
	Target students Division/major/grade	Business Administration/Sophomore	Opening semester	2020 1ST SEMESTER
	Class time and classroom	Mon B(Da111)Thu B(Da111)	English Grade	A(100%English)
Reference to this course	Prerequisite courses	Mathematics for Management (Quantitative business analysis)		
	Related basic courses	Calculus		
	Recommended concurrent courses	Linear algebra; Introduction to Business probability models		
	Related advanced courses			

Instructor	Name (title/division)		Kim, Sunkyo(Professor, Business Administration)			
	Office Room Number	다528	Office phone Number	2841	e-mail	
	Office hours			Homepage address	ajou.ac.kr/~sunkyo	
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

1. Introduction

As a sequel to the Quantitative Business Analysis, this course covers advanced topics of deterministic mathematical programming. During the first half, the duality in linear programming will be discussed with many related issues. Integer programming, dynamic programming, and non-linear programming problems will be discussed during the second half. Students interested in this course may also consider taking 'Introduction to business probability models' in which uncertainties and probabilistic nature of various business problems will be discussed.

2. Course Objectives

Students will learn how to mathematically formulate and solve various business and economic problem.

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3. Class types and activities

4. Teaching Method

☒ lecture
 ☐ discussion and debate

☒ team project(presentation and case studies)
 ☐ experiments(role-playing,etc)

☐ designing and production
 ☐ on-site learning(on-site training)

☐ others

5. Support Systems in Use

☒ AjouBb
 ☐ automatic recording system
 ☐ web-based assignment

☐ cyber lecture
 ☐ online content

☐ class behavior analyzing system
 ☐ others

6. Teaching Tools

<input checked="" type="checkbox"/> PBL(Problem Based Learning)	<input type="checkbox"/> CBL(Case Based Learning)	<input type="checkbox"/> TBL(Team Based Learning)
<input type="checkbox"/> UR(Undergraduate Research)	<input type="checkbox"/> FL(Flipped Learning)	<input type="checkbox"/> DSAL(Data Science Active Learning)
<input type="checkbox"/> others		

7. Knowledge and ability required for taking this course

Matrix algebra at the level of quantitative business analysis.
Excel spreadsheet.

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance			
midterm exam	1	45	
final exam	1	45	
quiz	6	10	수업 참여도 포함
presentation			
discussion			
homework			
etc			
study hours	6		

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Introduction to Operations Research (8th, 9th, or 10th ed.)	Hillier and Lieberman,	McGraw-Hill	2014
Ref.	경영과학 (주교재 8판, 9판 번역서)	김선교외 4인역	McGraw-Hill Korea	2013

10. Class system and Class shedule

Preliminaries: matrix algebra

-> Examples and applications of linear programming

-> Solution procedures for linear programming

-> Duality theory and sensitivity analysis

-> Special categories of linear programming

-> Network flows, dynamic programming, integer programming

-> Non-linear programming

< Class Schedule >

* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Preliminaries: Linear algebra	E	Kim, Sunkyo			
2	Preliminaries: Linear algebra	E	Kim, Sunkyo			
3	Linear Programming	E	Kim, Sunkyo			
4	The Theory of the simplex Method	E	Kim, Sunkyo			
5	Duality Theory and Sensitivity Analysis	E	Kim, Sunkyo			
6	Duality Theory and Sensitivity Analysis	E	Kim, Sunkyo			
7	Duality Theory and Sensitivity Analysis	E	Kim, Sunkyo			
8	Mid-term Exam	E	Kim, Sunkyo			
9	Network Optimization	E	Kim, Sunkyo			
10	Dynamic Programming	E	Kim, Sunkyo			
11	Integer Programming	E	Kim, Sunkyo			
12	Integer Programming	E	Kim, Sunkyo			
13	Non-linear Programming	E	Kim, Sunkyo			
14	Non-linear Programming	E	Kim, Sunkyo			
15	Non-linear Programming	E	Kim, Sunkyo			
16	Final Exam	E	Kim, Sunkyo			

11. Other items of notification