

Mathematics for Management

Course Name	Course type (credit/hours)	전선(3/3)			Course code	1055
	Target students Division/major/grade	경영학부/교양 1학년			Opening semester	2017 1ST SEMESTER
	Class time and classroom	수B(다311) 금B(다311)(다311)			English Grade	A(100%English)
Reference to this course	Prerequisite courses					
	Related basic courses					
	Recommanded concurrent courses					
	Related advanced courses	Management science				
Instructor	Name (title/division)		김선교 (교수/경영대학 경영학과)			
	Office Room Number	다528	Office phone Number	2841	e-mail	
	Office hours	TBA		Homepage address	ajou.ac.kr/~sunkyo	
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

1. Introduction

This course introduces mathematical models and methods of quantitative business analysis. Various examples are used to explain and show how the decision-maker can apply quantitative methods to solve many different kinds of managerial problems. The objective of the course is to provide students with a basic understanding of the role that quantitative approaches play in the decision-making process.

Students will learn how to

- formulate various business problems as mathematical programming models and
- apply mathematical concepts and techniques to find an optimal solution/decision

2. Course Objectives

The objective of the course is to provide students with a basic understanding of the role that quantitative approaches play in the decision-making process.

Students will learn how to

- formulate various business problems as mathematical programming models and
- apply mathematical concepts and techniques to find an optimal solution/decision

3. Class types and activities

4. Teaching Method

<input type="checkbox"/> lecture	<input type="checkbox"/> discussion and debate
<input type="checkbox"/> team project(presentation and case studies)	<input type="checkbox"/> experiments(role-playing,etc)
<input type="checkbox"/> designing and production	<input type="checkbox"/> on-site learning(on-site training)
<input type="checkbox"/> others	

5. Support Systems in Use

<input type="checkbox"/> e-class	<input type="checkbox"/> automatic recording system	<input type="checkbox"/> web-based assignment
<input type="checkbox"/> cyber lecture	<input type="checkbox"/> blended learning(combination of online and offline teaching)	
<input type="checkbox"/> class behavior analyzing system	<input type="checkbox"/> others	

6. Teaching Tools

<input type="checkbox"/> PBL(Problem Based Learning)	<input type="checkbox"/> CBL(Case Based Learning)
<input type="checkbox"/> TBL(Team Based Learning)	<input type="checkbox"/> others

7. Knowledge and ability required for taking this course

- Solving a system of equations
- Spreadsheet modeling

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance			
midterm exam	1	45	
final exam	1	45	
quiz	8	10	
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 (9 th ed.)	Hillier and Lieberman	McGraw-Hill	2009
Sub	Introduction to Mathematical Programming	W.Winston&M. Venkataraman	Duxbury	2003
Ref.	경영과학 (Introduction to Operations Research 번역서)	김선교외4인역	McGraw-Hill Korea	2007

10. Class system and Class shedule

<p>Linear programming formulation</p> <ul style="list-style-type: none"> -> Product mix and resource allocation -> Profit maximization & cost minimization -> Crew/work scheduling problem -> Network flows problem -> Dynamic Programming -> Integer programming <p>Differential calculus</p> <ul style="list-style-type: none"> -> Unconstrained optimization of function of one variable: application to EOQ mdel -> Unconstrained optimization of function of several variables: application to least square estimation

< Class Schedule >

* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Linear programming: Product mix and resource allocation		김선교			
2	Linear programming: Network flows problem		김선교			
3	Linear algebra: system of linear equations		김선교			
4	Linear algebra: matrix inverse and Cramer's rule		김선교			
5	Linear programming: crew scheduling and blending problems		김선교			
6	Transportation Problems		김선교			
7	Assignment Problems		김선교			
8	Mid-Term Exam		김선교			
9	Network Optimization Models		김선교			
10	Network Optimization Models		김선교			
11	Project Management		김선교			
12	Differentiation		김선교			
13	Differentiation and optimization		김선교			
14	Differentiation and optimization		김선교			
15	Unconstrained optimization of several variables: partial differentiation		김선교			
16	Final Exam		김선교			

11. Other items of notification