

國立中正大學企業管理學系學士班教學大綱

115 學年度第 1 學期

科目編號：5202009 (Class B)

科目名稱：管理科學概論

英文譯名：Introduction to Management Science

修別/學分數：必修/3

Office hours: Wed 9:10-10:00, Fri 9:10-10:00

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Course Objective [Learning goal: problem-solving and logical thinking]

In today's era of rapid advances in artificial intelligence (AI) and big data, the value of Management Science is more critical than ever. While AI can process vast amounts of information at high speed, defining problems, building models, choosing appropriate decision methods, and interpreting results still depend on the theoretical and methodological foundations of Management Science (Operations Research) (OR/MS). This course introduces the modeling processes and solution procedures of scientific decision-making in OR/MS, focusing on those commonly used in **business analytics** and management problem-solving. The fundamental concepts underlying solution methods, as well as their managerial implications, will be emphasized. The course is intended to be both interesting and informative.

Textbook

1. Class notes written by the instructor.
2. Camm, J.D., Cochran, J.J., Fry, M.J., Ohlmann, J.W., Anderson, D.R., Sweeney, D.J., and Williams, T.A., 2023, An Introduction to Management Science: Quantitative Approaches to Decision Making, 16th Edition, Cengage Learning.

Course Outline

Week (Date)	Topic	Text
1 (9/9, 9/11)	Course description/Introduction to Management Science – The Science of Better	Chap 1
2 (9/16, 9/18)	Linear Programming (LP), Computer Solutions (Excel Solver, Lingo; Python if time permits), and Applications	Chap 2-5, 17, 18
3 (9/23, 9/25*)		
4 (9/30, 10/2)		
5 (10/7, 10/9*)		
6 (10/14, 10/16)	Introduction to Transportation Problems (TP)	Chap 6, 9, 19, 20
7 (10/21, 10/23)	TP	
8 (10/28, 10/30)	TP/Introduction to Network Analysis	
9 (11/4, 11/6)	Introduction to Integer Linear Programming (ILP)/ Midterm Exam	Chap 7
10 (11/11, 11/13)	Introduction to Decision Analysis/ Introduction to Stochastic Processes	Chap 13, 14, 16
11 (11/18, 11/20)	Queueing Systems and Applications	Chap 11
12 (11/25, 11/27)		
13 (12/2, 12/4)		
14 (12/9, 12/11)		
15 (12/16, 12/18)	Introduction to Inventory Systems/ Final Exam	Chap 10
16 (12/23, 12/25*)		

17 (12/30, 1/1*)	Introduction to Inventory Systems	Chap 10
18 (1/6)	Alternative learning	--

* Holiday

Grading

Learning attitude/Participation	10%
Homework	14% (HW1: group discussion assignment 8%)
Midterm exam (11/6)	32%
Final exam (12/18)	44%

Notes

- How to learn Management Science effectively:
 - Request leave only for irresistible reasons (e.g., illness or injury).
 - Concentrate in class, take notes actively, and try to think logically.
 - Carefully review and thoroughly understand the class notes.
 - Learn by doing. Enjoy doing homework and exercises from class.
 - Regularly review the textbook.
 - Ask questions, if any.
 - Carefully review your mistakes when correcting answers on exercises and exams.
- Any dishonesty, violation of university rules, or absence from exams without valid reasons must result in a failing grade on this course.**
- Learn by doing. Study hard, play hard. As you sow, so will you reap. No pain, no gain.
- Learning attitude is everything.
- Grade adjustment policy:** To account for the overall difficulty of the course assessments, the instructor may apply an upward linear adjustment to the final raw scores. A minimum raw-score threshold for adjustment eligibility will first be determined based on the overall class performance. Raw scores below the threshold will not be adjusted. No student's score will be reduced as a result of this adjustment.
- If an examination must be administered online, the weights of the assessment components may be adjusted. Any adjustment will be announced and applied uniformly to all students.
- Please follow the intellectual property instructions and make no illegal copies.**
- A useful way to contact me is by e-mail.
- Other information can be found on the Internet at my website:



Recommended Reading

- Asllani, A., 2014, **Business Analytics with Management Science: Models and Methods**, Pearson FT Press.
- 鄭惟厚 (譯自 Moore, D.S., *Statistics: Concepts and Controversies*), 1998, 統計，讓數字說話！，天下文化。
- 高強，2008，贏在問題解決力 (*Problem Solving Skills*)，天下雜誌。
- 林靜宜，2014，鼎泰豐—有溫度的完美，天下文化。
- 大前研一，2015，思考的技術，商周。
- Jensen, P.A. and J.F. Bard, 2003, *Operations Research: Models and Methods*, Wiley.