

# Capital University of Economics and Business

## Overseas Chinese College

### Course Syllabus

<b>Year and Semester</b>	Spring					
<b>Course Name</b>	Operations Research					
<b>Course Code</b>	MAT333					
<b>Course Type</b>	General Education (Required)    General Education (Elective) Basic Disciplinary Course <input checked="" type="checkbox"/> Professional Course (Required) Professional Course (Elective)    Professional Course (Expanded) Professional Course (Advanced)					
<b>Course Credits</b>	3					
<b>Course Hours</b>	Total Class Hours	48	Lecture Hours	48	Experiment (Computer) Hours	0
<b>Applicable object</b>	Freshman    Sophomore    Junior    Senior					
	Business Administration (Accounting)					
	Information Management and Information Systems (Finance)					
<b>Prerequisites</b>	Calculus I & II, Linear Algebra & Probability and Statistics					
<b>Instructor</b>						
<b>Contact Information</b>	Office: C217					
	Tele: (010)83951082					
	Email: tianjiangxue@cueb.edu.cn					
<b>Office Hour</b>	W: 09:55-12:20					
<b>Learning Centre</b>	T: 15:25-17:00; T: 18:00-20:00(online);					
<b>Grade/Section</b>	2022IT					
<b>Course Time/Place</b>	T: 09:55-12:20/ 博学楼 111					
<b>Textbook</b>	David Anderson. <i>An Introduction to Management Science Quantitative Approaches to Decision Making, 12th Edition</i> . China Machine Press, ISBN: 9-787-111-290353					

#### **Student Learning Outcomes**

After learning this course, the students will be able to:

##### **Knowledge:**

- ♦ solve LP problems using the Simplex Method.

- ♦ develop a basic understanding of project scheduling techniques, inventory models and waiting line models.
- ♦ grasp basic decision-making strategies.

#### Capability

- ♦ apply LP theory to solve transportation, assignment and transshipment problems
- ♦ use decision analysis to develop reasonable decision-making strategies
- ♦ demonstrate effective professional communication skills

#### Mindset

- ♦ be logical, ethical, methodical, consistent and accurate
- ♦ apply critical thinking in the process of decision making

#### Website Source

1. [http://en.wikipedia.org/wiki/Operations\\_research](http://en.wikipedia.org/wiki/Operations_research)
2. <http://nptel.iitm.ac.in/video.php?courseId=1110>

#### Teaching Methods

This course consists of lectures, discussions and student presentations. Students will be divided into small groups with a group leader helping others in the group. Students must be prepared to finish some small questions and small quizzes during the class.

#### Grade Criterion

Component	Weight	Description
Final Exam	20%	A cumulative final examination will be given based on all of the contents of the class. A minimum of 25% of the exam (5 of the 20%) will consist of questions utilizing the application of critical thinking.
Mid-Term Test	20%	A cumulative midterm examination will be given based on all of the contents of the first half of the class. A minimum of 25% of the exam (5 of the 20%) will consist of questions utilizing the application of critical thinking.
Homework	15%	Homework problems will be assigned throughout the term, including but not limited to: terminologies, research project, and reading assignments.
Quizzes	15%	There will be at least 2 quizzes during the semester. The purpose of the quizzes is to ensure that students keep up with the readings. It may also be used as a way to check the attendance. Quizzes will test your knowledge of both concepts and the application of those concepts.
Presentation	10%	The students will be divided into several groups to prepare a presentation. Each student is required to be involved in the presentation. The topics can be selected from the textbook or lectures. Each group need to finish a PPT related to the topic which is given and hand in the related resources to the teacher before the presentation. The percentage is : content50%+organization10%+language15%+performance25%
Participation	10%	Individuals will be asked to participate individually in questions during the

		semester. Students are required to meet with their teachers every week. Their performances should be counted in their participation.
Attendance	10%	Refer to attendance policy listed below
<b>Total</b>	100%	

### **Detailed Grade Computation**

	Before Midterm	After Midterm
Attendance	5%	5%
Participation	5%	5%
Homework	5%	10%
Quizzes	5%	10%
Presentation		10%
Midterm test	20%	
Final exam		20%
Total	40%	60%

### **Grading Policy**

A+ 97-100	A 93-96	A- 90-92	B+ 87-89	B 83-86	B- 80-82
C+ 75-79	C 70-74	C- 67-69	D+ 63-66	D 62-60	F 0-59

### **Exam Schedule**

Midterm Test:

Final Exam:

### **Assessment of Student Performance**

#### *☞ Self-Study and Reading ability Practice*

Instructor will give out the chapters or the reference books to read and use class hours to have discussion; students should be able to show a proactive attitude and ability for self-study and reading. Knowledge and oral English will be elements of homework or presentation score.

#### *☞ Homework*

Students should finish their homework by themselves. Copying from others will be treated as cheating and the homework scores will be lowered. Students should hand in all assignments on time. Late assignments will be accepted at the discretion of the instructor (i.e., when the student was ill or had an excused absence). Late assignments without reasonable proof will be reduced in score by 50%.

#### *☞ Attendance*

Because the course covers a great deal of material, attending every class session is very important for performing well.

- ◆ Being late for 15 minutes or more is considered an absence.
- ◆ Five hours or above of unexcused absences will result in the lower level of the final grade by one grade band (e.g. from C – to D +). Any excused absence must be discussed directly with the teacher.
- ◆ Absence which is more than 1/3 of the total teaching hours will cause an F (a failing grade) directly, but students are welcome to continue attending classes.
- ◆ An incomplete grade (I) will be considered in case of medical or family emergencies.

### *☞ Participation*

- ◆ Students should participate in classes actively. Half of participation grade is determined by their presentation in class. They are encouraged to ask questions relevant to the subject and express their own opinions. Every student should respect the ideas, opinions, and questions of their classmates.
- ◆ Students should also use office hours to ask questions or talk with the instructor for good communication and effective learning.
- ◆ Frequent visiting the instructor and chatting in English during office hours is highly recommended.
- ◆ Any misbehavior and non-class related activities in class will result in the lower level of the participation grade, including ringing cell phones.
- ◆ All above behaviors will be solely evaluated by the instructor for scoring.

### *☞ Textbook*

Students must bring the textbook to class.

### Topical Course Outline

Week	Date	Topics	Homework
1		● Introduction ● Chapter 1 Introduction to Operations Research	—
2		● Chapter 2 Introduction to linear programming, graphical approach II ● Chapter 3 Sensitivity Analysis I	—
3		● Chapter 3 Linear programming: Sensitivity Analysis II ● Chapter 4 Linear programming application	—
4		● Chapter 5 Linear programming: Simplex Method I	—
5		● Chapter 5 Simplex Method II	—
6		● Chapter 6 Duality Theory and Sensitivity Analysis	—
7		● Chapter 7 The transportation and Assignment Problems	—
8		● Chapter 9 Network models ● Quiz	—
9		● Review and Midterm	—
10		● Chapter 10 Project Scheduling	—
11		● Chapter 11 Inventory Models	—
12		● Students' presentation	—
13		● Chapter 12 Queuing Theory	—
14		● Chapter 14	—

