Kuwait University
College of Business Administration
Information Systems & Operations Management Department

Course Syllabus

Dr. Ahmad M. Ashkanani

ISOM 205 – Introduction to Modeling and Decision Making – Spring 2022

Section 03A	M/W 09:30 AM – 10:45 AM
Section 06A	M/W 11:00 AM – 12:15 PM
Email	a.ashkanani@ku.edu.kw
Office	2nd Floor, ISOM Department, Office # 02-0A-1016
Office Hours	M/W 12:30 PM – 2:00 PM (By appointment)
TA	To be announced.
Textbook	Taylor III, B. W. (2013). **Introduction to Management Science**, 11th edition (Global edition), Pearson. (Or latest available edition from the bookstore.)
Online Components	(1) Microsoft Teams: Announcements.
	(2) Moodle: Course material, quizzes, assignments, and exams.
	(3) Piazza: Questions and answers.

This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff or posting questions on Microsoft Teams, I want you to post your questions on Piazza. Thus, I will not answer questions sent to me via Teams, Moodle, or email, so make sure to post you questions on our Piazza page.

The Piazza course access code is 2050122.

COURSE DESCRIPTION:

This course is designed to develop a basic understanding and competence in the use of quantitative methods to modeling and solving managerial problems. The focus is on optimization and modeling techniques such as linear and integer programming. Spreadsheet modeling using Excel is utilized for solving these problems. Throughout the course, practical examples are provided, and issues faced by the managers are discussed so that students will have a good grasp of the real world managerial decision-making environment.

COURSE LEARNING OBJECTIVES (CLOS):

Students who successfully complete this course are expected to be able to:

CLO1. Analyze business decisions using break-even analysis, linear programming, integer programming, and transportation models.

CLO2. Design mathematical models that reflect business logic of business problems.

CLO3. Create spreadsheet models using MS Excel and Solver add-in.

CLO4. Conduct sensitivity analysis and consider tradeoffs when addressing business constraints.

CLO MAPPING TO CBA SKILL BASED COMPETENCY GOALS[1]

CLO	Competency Goal				
	Analytical	Communication	Information Technology	Business Ethics	General Business Knowledge
1	I				
2	I				I
3			R		
4	I				

Note: 'I' indicates Introduce and 'R' indicates Reinforce

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[1] CBA Competency Goals can be found at the end of this document

COURSE OUTLINE

Topic	Key Topics	Reading	Programming Assignment	Quiz
Introduction to Modeling	• The Management Science Approach to Problem Solving • Model Building: Break-Even Analysis • Computer Solution • Management Science Modeling Techniques • Business Usage of Management Science Techniques • Management Science Models in Decision Support Systems	CH1	PA1	Q1
Modeling with Linear Programming	• Model Formulation • A Maximization Model Example • Graphical Solutions of Linear Programming Models • A Minimization Model Example • Irregular Types of Linear Programming • Characteristics of Linear Programming	CH2	–	
Solving Linear Programming Models	• Computer Solution • Sensitivity Analysis	CH3	PA2	Q2
Solving Examples of Linear Programming Models	• A Product Mix Example • A Diet Example • An Investment Example • A Marketing Example • A Blend Example • A Multipored Scheduling Example	CH4	PA3	
Integer Linear Programming Models	• Integer Programming Models • Integer Programming Graphical Solution • Computer Solution of Integer Programming Problems with Excel • Binary (0–1) Integer Programming	CH5	PA4	Q3
Linear Programming Transportation Models	• The Transportation Model • Computer Solutions of a Transportation Problem • The Assignment Model • Computer Solutions of an Assignment Problem	CH6	PA5	

GRADING AND COURSE REQUIREMENTS

All dates (EXCEPT for the final) may change due to class circumstances and holidays. Always check online for the latest version of the syllabus.

Weight	Category	Description
30%	**Quizzes**	Three quizzes. Each quiz will cover the content of two units.
10%	**Programming Assignments**	Five programming assignments.
20%	**Programming Exam**	Date/Time: To be announced.
40%	**Final Exam**	Date/Time: Thursday 09/06/2022; 2PM-4PM.
100%		

Grade Distribution

Grade	Range
A	≥ 95
A-	≥ 90 and < 95
B+	≥ 87 and < 90
B	≥ 83 and < 87
B-	≥ 80 and < 83
C+	≥ 77 and < 80
C	≥ 73 and < 77
C-	≥ 70 and < 73
D+	≥ 65 and < 70
D	≥ 60 and < 65
F	< 60

Important Dates

Date	Event
Thu. 02/06/2022	Last Day of Classes
Thu. 09/06/2022	Final Exam

QUIZZES

Quizzes will be given at the beginning of class and/or may include oral examination components (to be conducted later if needed). The study material for each quiz is indicated in the course outline. Quiz questions are a good reflection of what the final exam questions

will look like. The total quizzes grade is worth 30% of your final grade. The quiz dates will be announced later.

PROGRAMMING ASSIGNMENTS

We will have a total of five programming assignments in this class. These assignments will help you develop your analytical and information technology skills where you will be asked to model and solve business problems using computer tools. The total assignments grade is worth 10% of your final grade (each assignment is worth 2%). The assignment dates will be announced later.

PROGRAMMING EXAM

There is a comprehensive programming exam in this course. The exam is worth 20% of your final grade and will test you on your linear programming skills (using computer tools). The exam date will be announced later.

FINAL EXAM

There is a comprehensive final exam (worth 40% of final grade) in this course. The following exam rules assume that the exam will be conducted on-campus. However, due to the ongoing developments related to COVID-19 pandemic, we may conduct the final exam online and/or may have an oral exam component. Thus, the exam rules may change accordingly.

Identification: You must bring and display a valid Kuwait University student ID to the examinations.

Late Arrival: If you arrive late for an examination, you will be given the remaining amount of time to complete your examination. However, after the first student hands in her/his examination, late students cannot start the examination. These late students will receive a FA grade in the course.

Questions during the examination: You are not allowed to ask questions about the exam content during the examination, unless you feel that there is a typographical error. Reading and understanding what the question is asking is part of the exam. If you need to make any assumptions, then make sure to clearly write those assumptions in your response.

Other: Working on your examination after time has expired is not allowed – this includes filling in answers on the answer sheet.

Note for the final exam: please bubble in your answers on the Scantron as you work through the exam, and not at the end.

COVID-19 note: these rules might change if it is determined that we cannot conduct the exam on campus.

ATTENDANCE

Attendance in this class is required. While there is no specific grade given for attendance, absences and late attendance will negatively affect your in-class experience. It is your responsibility to seek out help from classmates to fill you in on missed materials. For online sessions, you are expected to attend the live meetings that we will have on MS Teams. Failing to do so will lead to counting you as absent for a given class session.

In addition to my classroom policies, you are also expected to abide by the policies of the University. Every student in this course must abide by the Kuwait University Policy on Attendance (published in the Student Guide). A copy of the student guide can be accessed online on:

http://vpaa.ku.edu.kw/ar/documents/KU%20ByLaws/Students/Curriculum_Regulations.pdf

ACADEMIC INTEGRITY

The University's code of academic integrity is designed to ensure that the principles of academic honesty and integrity are upheld. All students are expected to adhere to this Code. All acts of academic dishonesty will be dealt with in accordance with the provisions of this code. Every student in this course must abide by the Kuwait University Policy on Cheating and Plagiarism (published in the Student Guide). A copy of the student guide can be accessed online on:
http://vpaa.ku.edu.kw/ar/documents/KU%20ByLaws/Students/Curriculum_Regulations.pdf

In particular,
- You should neither give nor receive assistance from anyone in taking the quizzes, assignments, and final exam.
- You should immediately report to me any act of academic dishonesty that you may observe. Your anonymity will be protected.

Cheating includes (but not limited to):
- Using unauthorized notes during the examination.
- Using unauthorized devices during the examination
- Communicating with anyone besides instructor or exam proctor.
- Looking at another student's work during the examination.
- Copying another student's work.
- Having someone else take the exam on your behalf.

OTHER COURSE POLICIES

Your fellow-students and I need 100% of your attention and mindshare while the class is in session. Toward this end:

- For each class meeting, please arrive sufficiently ahead of the official start time in order to collect any handouts or prior quizzes that have been graded and get yourself ready with your notes and papers.
- Please do not walk around, or out of, the classroom, while class is in session.
- All electronic gadgets must be turned off (not turned to vibrate, but actually turned off!) while class is in session. For the purpose of this bullet, if your gadget has an on/off switch, it is an electronic gadget. This note does not apply to online sessions.

Note: Please DON'T send anyone (a family member or any other person) to talk to me about giving you a higher grade. Any student who violates this rule will not receive class bonuses (if any).

Special Needs: If you have a disability and/or special needs, you should bring this to my attention as soon as possible, but not later than the second week of class.

COMMON EXCUSES THAT ARE NOT ACCEPTABLE

"My scores do not reflect the enormous effort I am putting into this course."

"I really understand the material, but my scores don't reflect it."

"I spent hours studying for this test, but I just blanked out during the test."

"I am not good at math problems."

"I am not good."

ADDITIONAL COVID-19 NOTES

- We will have classes on-campus. However, we **may** have some online class sessions and classwork (via MS Teams and Moodle) if needed.
- If the Internet disconnects during an online class session from my side (or I face any technical issues that prevent me temporarily from accessing the class meeting), then I will try to reconnect as soon as possible. Thus, please stay in the online meeting while I fix the technical issues (if any). If class time ends before I am able to resolve the technical issue or I send you a note indicating that we cannot resume the session, then you are free to leave the session.
- We may use online proctoring tools (e.g., Proctorio) when conducting online exams (if any).
- We may have oral exams in addition to the online exams (if needed).

CBA COMPETENCY GOALS

1. <u>Analytical Competency:</u> A CBA graduate will be able to use analytical skills to solve business problems and make a well-supported business decision.

Student Learning Objectives:

1.1. Use appropriate analytical techniques to solve a given business problem.

1.2. Critically evaluate multiple solutions to a business problem.

1.3. Make well-supported business decisions.

2. <u>Communication Competency:</u> A CBA graduate will be able to communicate effectively in a wide variety of business settings.

Student Learning Objectives:

2.1. Deliver clear, concise, and audience-centered presentations.

2.2. Write clear, concise, and audience-centered business documents.

3. <u>Information Technology Competency:</u> A CBA graduate will be able to utilize Information Technology for the completion of business tasks.

Student Learning Objectives:

3.1. Use data-processing tools to analyze or solve business problems.

4. <u>Ethical Competency:</u> A CBA graduate will be able to recognize ethical issues present in business environment, analyze the tradeoffs between different ethical perspectives, and make a well-supported ethical decision.

Student Learning Objectives:

4.1. Identify the ethical dimensions of a business decision.

4.2. Recognize and analyze the tradeoffs created by application of competing ethical perspectives.

4.3. Formulate and defend a well-supported recommendation for the resolution of an ethical issue.

5. <u>General Business Knowledge:</u> A CBA graduate will be able to demonstrate a basic understanding of the main business disciplines' concepts and theories.

Student Learning Objectives:

5.1. Acquire a fundamental understanding of knowledge from the main business disciplines (e.g. finance, accounting, marketing, and management information systems, among others).