

**Department of Industrial Engineering & Management
Faculty of Engineering and Architecture
American University of Beirut**

**INDE 302: Operations Research I. Section 1. CRN 11630
Fall 2018: 11:00AM – 12:10PM, T-Th, Rm. IOEC-225**

Course Description:

This course is an introduction to an operations-research approach to engineering decision-making. It includes the formulation, solution, interpretation, and implementation of mathematical models such as linear programming (LP) and network problems. Upon completion of the course, students will be able to: (a) develop and formulate a variety of optimization problems for engineering and economic systems; (b) determine optimal solutions; and (c) present managerial recommendations based on optimal solutions and sensitivity analysis.

Instructor:

Prof. Ali Yassine

419 Bechtel. Tel: 3494, ali.yassine@aub.edu.lb

Office Hours: Tues. & Thurs 10:00 am- 11:00 am and 12:00PM - 1:30 pm, or by appointment

Text:

Required: Hamdy S. Taha, Operations Research: An Introduction, Prentice Hall, 9th Edition.

Software:

Microsoft Excel will be used for all homework problems that require the use of software.

Homework:

Homework problems will be assigned almost weekly throughout the semester. Each homework assignment is due on Tuesday of each week. However, the homework will neither be collected nor graded. It is imperative to make sure that you do the homework on timely basis in order to solve the weekly short quiz.

Quizzes:

A 10 minutes quiz will be given almost EVERY Thursday (for exceptions, please check the detailed course schedule). The quiz will have one problem taken from the assigned homework problems that are due on Tuesday of the same week. There will be *about* **EIGHT/Nine** short quizzes, which will account for 25% of your final grade. I will drop the lowest quiz score (or two quizzes if we do 9 quizzes) and calculate your quiz total based on the highest remaining quiz scores. **No make-up quizzes will be given under any circumstances!**

Examinations:

- There will be one midterm exam (35%) and a final exam (40%).
- Exams are CLOSED BOOK and CLOSED NOTES, except for a single 8.5x11 inch sheet (you can use both sides) of handwritten notes for the mid-term exam and the final exam.
- No make-up exams will be given unless in extreme circumstances and with prior arrangement with the instructor.
- The final exam is CUMULATIVE, but new chapter material will be emphasized on the final exam.
- Each student must bring a current picture ID in order to be allowed to take the exam. ANY student not having a picture ID will NOT be allowed to take the exam.
- Dishonest conduct related to any examination or quiz will not be tolerated. Students who cheat will receive a failing grade (F). Cheating includes but is not limited to GIVING / RECEIVING unauthorized help and the use of unauthorized material during an examination.

TENTATIVE SCHEDULE

Wk	Date	Topic
1	Aug. 30, 2018	Introduction to course & Linear Programming (LP)
2	Sept. 4, 2018	Simple problem formulation of TWO decision variables
	Sept. 6, 2018	Graphical Solution
3	Sept. 11, 2018	Graphical Sensitivity Analysis HW #1 due on Tuesday
	Sept. 13, 2018	Quiz 1 (Thursday)
4	Sept. 18, 2018	Excel LP Solution & Excel Interpretation of Results HW #2 due on Tuesday
	Sept. 20, 2018	Quiz 2 (Thursday)
5	Sept. 25, 2018	LP Formulation and applications 1 HW #3 due on Tuesday
	Sept. 27, 2018	Quiz 3 (Thursday)
6	Oct. 2, 2018	Simplex Method for solving LPs HW #4 due on Tuesday
	Oct. 4, 2018	Quiz 4 (Thursday)
7	Oct. 9, 2018	2-Phase Method HW #5 due on Tuesday
	Oct. 11, 2018	Quiz 5 (Thursday)
8	Oct. 16, 2018	No Classes. I am going to a conference this week
	Oct. 18, 2018	
9	Oct. 23, 2018	Review for Midterm
	Oct. 25, 2018	No Class
	Saturday Oct. 27	MIDTERM Exam 10am-12noon
10	Oct. 30, 2018	No Class
	Nov. 1, 2018	Duality
	Saturday Nov. 3	Make up session. 10am – 12noon
11	Nov. 6, 2018	Sensitivity Analysis Revisited HW #6 due on Tuesday
	Nov. 8, 2018	Quiz 6 (Thursday)
12	Nov. 13, 2018	Transportation Model HW #7 due on Tuesday
	Nov. 15, 2018	Quiz 7 (Thursday)
13	Nov. 20, 2018	Network Models HW #8 due on Tuesday
	Nov. 22, 2018	Quiz 8 (Thursday)
14	Nov. 27, 2018	Project Scheduling Networks HW #9 due on Tuesday
	Nov. 29, 2018	Quiz 9 (Thursday)
15	Dec. 4, 2018	Review for Final
	Dec. 6, 2018	
	Dec. ?, 2018	FINAL Exam