

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

**INDE 302: Operations Research I. Section 2. CRN 11951
Fall 2020: 9:30AM – 10:45PM, T-Th
IOEC 217**

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 11:00AM - 12:30PM, or by appointment
WebEx: <https://aub.webex.com/meet/ay11>

Text:

Required: Hamdy S. Taha, Operations Research: An Introduction, Prentice Hall, 10th 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 Thursday of the following week. I will pick only one problem to be graded. I will solve the homework on Thursdays and post the solution on Moodle. The homework is 20% of your grade.

Examinations:

- There will be one midterm exam (40%) and a final exam (40%).
- Exams are OPEN BOOK and NOTES.
- 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	Sept. 8, 2020	Introduction to course
	Sept. 10, 2020	Linear Programming (LP): Problem formulation of TWO decision variables
2	Sept. 15, 2020	Graphical Solution & Graphical Sensitivity Analysis
	Sept. 17, 2020	Excel LP Solution & Excel Interpretation of Results
3	Sept. 22, 2020	LP Formulation and Applications I
	Sept. 24, 2020	HW #1 due
4	Sept. 29, 2020	LP Formulation and Applications II
	Oct. 1, 2020	HW #2 due
5	Oct. 6, 2020	Simplex Method for solving LPs
	Oct. 8, 2020	HW #3 due
6	Oct. 13, 2020	Simplex Method for solving LPs & 2-Phase Method
	Oct. 15, 2020	HW #4 due
7	Oct. 20, 2020	Duality
	Oct. 22, 2020	HW #5 due
8	Oct. 27, 2020	Duality & Sensitivity Analysis Revisited HW #6 due on Tuesday
	Oct. 29, 2020	Prophet's Birthday
9	Nov. 3, 2020	Review for Midterm
	Nov. 5, 2020	Midterm exam
10	Nov. 10, 2020	Transportation & Assignment Models
	Nov. 12, 2020	
11	Nov. 17, 2020	Network Models
	Nov. 19, 2020	HW #7 due
12	Nov. 24, 2020	Project Scheduling Networks
	Nov. 26, 2020	HW #8 due
13	Dec. 1, 2020	Review for Final Exam
	Dec. 3, 2020	No Classes- Reading Period Starts
14	?? Dec. 8, 2020 ?	FINAL Exam