BLG 368E Operations Research
Spring 2023
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Class Hours: Tuesday 14:30-17:30
Location: Online
Instructor Office Hours: Friday 14:00- 15:00 (or by appointment)

Course Reading Material:

- **Textbooks:**
  - Winston W., *Operations Research: Applications and Algorithms*, 4th edition, Thomson Learning
  - Course slides and other materials
- **Other useful references:**
  - Taha H.A., *Operations Research: An Introduction*, Pearson
  - Taylor B.W. III, *Introduction to Management Science*, Pearson
  - Hillier and Lieberman, *Introduction to Operations Research*,

Course Description:
This course is on optimization techniques for both manufacturing and service enterprises. It is designed for undergraduate students. Thus, it will cover some important and popular operations research problems and their solution methods such as linear programming, integer programming, goal programming, transportation problem and simplex method. Although some theoretical aspects of these techniques will be discussed, the emphasis will be on how to apply and integrate these techniques for solving engineering problems in manufacturing and service organizations. We will explore how to formulate problems and solve them with appropriate techniques. We will utilize Python and Excel Solver which are the basic softwares widely used in OR

Course Objectives:
BLG 368E students will be able to

- Understand topics of operations research.
- Tackle linear and integer programming problems.
- Formulate problems and find appropriate solutions or algorithms to solve them.

Evaluation:

Exams: There will be 2 quizzes, 5 HW assignments. Make-up exams will be given only in case of emergencies, and only after officially documented proof is provided.

Grading:

Midterm: 35 %	(25 April 2022)
HW: 25 %	(Will be about 5 HW assignments)
Final: 40 %	
Total 100%	

Course Outline:

1. Linear programming (LP)
2. Solution methods for LP problems
3. Simplex method
4. Sensitivity Analysis
5. Integer prog.
6. Zero-one prog.
7. Goal prog.
8. Transportation problems
9. Project management (PERT-CPM)