

## **Business 9802 – Management Science I**

**Winter 2024**

**Instructor's Name: Soodabeh Asadi Dezaki**  
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**Fridays 09:00 a.m. – 12:00 noon**  
**Location: Room 2348**  
**(12 Sessions)**

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### **COURSE DESCRIPTION**

The class meets once a week for 3 hours. Each 3-hour class includes both leading lectures and articles. This course will focus on topics in deterministic optimization including linear programming, duality and sensitivity analysis, non-linear programming, integer programming, etc. In addition, students will also learn applications of the techniques and tools and how to identify, formulate, and investigate a research problem which can be analyzed through the tools under each technical topic. Students are expected to have read both the assigned chapter and article reading before each class and be prepared to engage in the class discussion.

### **LEARNING OUTCOMES/OBJECTIVES**

Students are expected to actively participate and contribute to the class-room discussion. The students will hand in written assignments and will be expected to have read technical chapter(s) and article(s) specified for the week. The term project consists of completing a formal literature review on a potential research topic. By the end of this course students should have a clear understanding of how to approach modeling in OR, as linear, nonlinear or integer programming; know popular optimization methods for solving these models and be familiar with applications of different models.

METHODS OF EVALUATION (subject to adjustment)

- 20% Class contribution
- 30% Assignments
- 20% Article Discussion
- 30% Report & Presentation

**MATERIALS/REQUIRED READING**

**Hillier & Lieberman** “Introduction to Operations Research” (11<sup>th</sup> Edition)

Additional material and articles will be specified well in advance of sessions where necessary.

**COURSE TIMELINE AND FORMAT**

(Subject to change or reorder)

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>H&amp;L chapter</b>
1	Fri Jan 12, 2024	Intro to OR, Modeling	Ch. 1, 2
2	Fri Jan 19, 2024	Linear Programming	Ch. 3, 4
3	Fri Jan 26, 2024	Duality	Ch. 5, 6
4	Fri Feb 2, 2024	Duality	Ch. 6
5	Fri Feb 9, 2024	Integer Programming	Ch. 12
6	Fri Feb 16, 2024	Integer Programming/Specific topics	Ch. 12
7	Fri Feb 23, 2024	Nonlinear Programming	Ch. 13
8	Fri Mar 1, 2024	Nonlinear Programming	Ch. 13
9	Fri Mar 8, 2024	Network Optimization	Ch. 10
10	Fri Mar 15, 2024	Game Theory	Ch. 15
11	Fri Mar 22, 2024	Lecture/Term Project Presentations	-
12	Fri Apr 5, 2024	Term Project Presentations	-

### **ENROLLMENT RESTRICTIONS**

Enrollment in this course is restricted to graduate students in the Ivey PhD Program, as well as any student that has obtained special permission to enroll in this course from the course instructor as well as the Graduate Chair (or equivalent) from the student's home program.

### **ACADEMIC OFFENCES: PLAGIARISM AND ACADEMIC INTEGRITY**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_grad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf).

All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

### **HEALTH AND WELLNESS SERVICES**

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. See <https://www.uwo.ca/health>.

Students who are in emotional/mental distress should refer to Mental Health Support at <https://www.uwo.ca/health/psych/index.html> for a complete list of options about how to obtain help. Additionally, students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director or program coordinator.

### **ACCESSIBLE EDUCATION WESTERN**

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with [Accessible Education Western \(AEW\)](#), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.

**A FINAL WELCOME AND REQUEST OF STUDENTS**

I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability, and other visible and nonvisible differences. I consider this classroom to be a place where you will be treated with respect. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class. If it is appropriate to our learning and you feel comfortable doing so, I ask that you share your unique point of view as we explore the course content.