COURSE SYLLABUS

Business 9802A – Winter 2018

Management Science I

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Wednesday 9:00am – 12:00pm
Location: IVEY 2102

COURSE DESCRIPTION
This is the first part of the Management Science foundation series; the second part of the series is Business 9812B. In this two course series, students will learn technical topics including linear programming, integer programming, stochastic processes, game theory, dynamic programming, non-linear programming. In addition, students will also learn applications of the techniques and tools (e.g. optimization software), and how to identify, formulate, and investigate a research problem which can be analyzed through the tools under each technical topic.

COURSE OBJECTIVES
This course introduces students to the theory, algorithms, and applications of optimization.

- The emphasis of this course is on deterministic optimization.
- The goal of the course is to introduce students to the use of quantitative approaches to problem solving, to mathematical modeling and formulation, and to available solution methods and output analysis.
- Students are introduced to a variety of practical problem formulations in different areas. Applications include logistics, supply chain, transportation, finance, health care among others.
- The optimization methodologies include linear programming, network optimization, integer programming, and advanced optimization methods.
- The course involves a project in which the student selects a problem in practice and is expected to perform modeling, analytical solution and output analysis.

COURSE ACTIVITIES / GRADING / METHODS OF EVALUATION
20% Class Contribution
20% Assignments
30% Leading Article Discussion
30% Project

EXPECTATIONS / CLASS CONTRIBUTION / ATTENDANCE
Class Contribution: Students are expected to actively participate and contribute to the class-room discussion. Students are therefore required to have read the required reading and prepared questions and discussion points to share with their classmates.
Assignment Questions: Every other week students will be given a set of 3-4 questions. Students are required to turn in the assignments within 1 week. Late assignments are not accepted and the student will receive a zero for that week.

Leading Article Discussion: A total of ten articles will be assigned for the course. Starting the second week, each week we will discuss an article. Students will sign-up to lead two 60 minute class-discussions per term. The discussion should include a description of the problem, motivation, brief literature review, model framework, assumptions, analysis/results explanation, and future work or extensions.

Term Report & Presentations: Each student will write a 5-8 page term report, and give a 20 minute presentation at the end of the term. The objective of the fall term project is to perform modeling, analytical solution and output analysis for a selected application in optimization.

MATERIALS / REQUIRED READING

- 10 articles assigned in class

PLAGIARISM / 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 the following Web site: 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

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. For example, to support physical activity, all students, as part of their registration, receive membership in Western’s Campus Recreation Centre. Numerous cultural events are offered throughout the year. Please check out the Faculty of Music web page http://www.music.uwo.ca, and our own McIntosh Gallery http://www.mcintoshgallery.ca. Information regarding health- and wellness-related services available to students may be found at http://www.health.uwo.ca.

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 (graduate chair), or other relevant administrators in their unit. Campus mental health resources may be found at http://www.health.uwo.ca/mental_health/resources.html.

To help you learn more about mental health, Western has developed an interactive mental health learning module, found here: http://uwo.ca/health/mental_wellbeing/education/module.html. This
module is 30 minutes in length and provides participants with a basic understanding of mental health issues and of available campus and community resources. Topics include stress, anxiety, depression, suicide and eating disorders. After successful completion of the module, participants receive a certificate confirming their participation.

DETAILED SESSION SCHEDULE

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<td>2</td>
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<td>Simplex Method</td>
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<td>Duality and Sensitivity analysis</td>
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