

## Introduction to Management Science

### AP/ADMS 3330 Section E

Fall 2022

#### Course Information

Course Instructor: Dr.Fuminori Toyasaki

E-mail: [toyasaki@yorku.ca](mailto:toyasaki@yorku.ca)

Phone: 416-736-2100 (20268)

Office Hours & Location: See below

Course Time & Days: Asynchronous

Class Location: ONLINE

Course eClass site:

<https://eclass.yorku.ca/>

#### Tutorials or Labs

Tutorial session will be provided by the TA in pre-recorded PowerPoint format for those that cannot attend on-campus tutorial sessions. Please see virtual tutorial schedule on course website. Online students will also have access to on-campus tutorials if you can attend. Both tutorial schedules will be posted on the course website.

#### Land Acknowledgment

York University recognizes that many Indigenous Nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, and the Huron-Wendat. It is now home to many First Nation, Inuit, and Métis communities. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region ([LA&PS Land Acknowledgement](#)).

#### Course Overview

#### Course Description

This course is an introduction to the basic theory underlying Management Science and Operations Research. This course not only helps the students learn how to model real life problems as mathematical models, but also provides them the mathematical foundation and the spreadsheet skills to solve them. Specifically, using spreadsheets, the course focuses on modeling a variety of

applications of finance, marketing and production/operations management with spreadsheets. Some of these applications include inventory control, workforce management, location and distribution problems, revenue management, portfolio selection, capital budgeting, and optimal sales allocation. The course also focuses on theories on basic optimization techniques such as the simplex method for solving linear programming, duality theory, Branch-&-Bound algorithm for solving integer linear programming and multi-criteria decision making. Prerequisite: AP/ADMS 2320 3.0 Course credit exclusion: AP/ADMB 3330 3.00 Course Website: <https://eClass.yorku.ca/>

### Course Learning Objectives

By the end of this course, students will be able to:

- Effectively utilize a series of quantitative techniques in real world scenarios
- Provide strategic direction using analytics and problem-solving skills
- Be proficient in displaying quantitative outcomes both visually and numerically
- Gain an in-depth understanding of basic, intermediate, and advanced quantitative methods

### Course Format and Organization

This course is delivered asynchronously. Pre-recorded PowerPoints will be made available that will cover the material much like the in-class environment. Students are expected to review lecture material each week and practice questions from the textbook.

### Technical Requirements

Students are required to have access to Microsoft Excel, PowerPoint and a non-programmable calculator. **Students must also have a stable Internet connection, or you should not be taking the course.**

### Course Communication Plan and Office Hours

Communication in the course will occur through announcements and postings on the course website.

1. Please ensure you read all documentation on the course website.
2. It will be your responsibility to regularly check online posts and your email.

Office Hours: Please send your questions via email. All questions will be answered within 24 to 72 hours' time with the exception of weekends. A one-on-one Zoom meeting may be set up depending on the nature of the question. Please note that emails from public email providers such as Gmail and Hotmail might be caught in spam. It is best to use your York email account for this course.

***There are no live/scheduled Zoom classes for this course. All material will be made available so you can view them at the most convenient time for your schedule.***

### **General Course Policy**

- 1. WARNING: Distribution or uploading of course content is STRICTLY PROHIBITIVE. All material is copywrite protected.**
- 2. You are NOT allowed to take pictures or record (audio or video) any content of the lecture.**
3. Please ensure you read all documentation on the course website.
4. The entire course, including the lectures, participation/discussion and test/exam-taking (may have a dedicated testing site), will take place on the course website/online.
  - a. the recordings should be used for educational purposes only and as a means for enhancing accessibility.
  - b. students **do not** have permission to duplicate, copy and/or distribute the recordings outside of the class (these acts can violate not only copyright laws but also FIPPA).
  - c. all recordings will be deleted after the end of classes.
5. It will be your responsibility to regularly check online posts and your email.

### **Course Evaluation**

<b>Assessment</b>	<b>Due Date</b>	<b>Weight %</b>	<b>Course Learning Outcome</b>
Term Test 1 - <b>ONLINE</b>	See Course Schedule	30%	Assessment of knowledge pertaining to specific lectures.
Term Test 2 - <b>ONLINE</b>	See Course Schedule	30%	Assessment of knowledge pertaining to specific lectures.
Final Exam - <b>ONLINE</b>	See Course Schedule	40%	Assessment of knowledge pertaining to specific lectures.
		<b>100%</b>	

## Assessment Descriptions

1. The two Term Tests and the Final Examination will be held online at the same time for all students.
2. Information concerning the Term Tests and Final Exams will be posted on the course website.
3. Term Tests and Final Exams will all be online. The two Term Tests and the Final Examination are to be finished by students individually. Students may not receive assistance or coaching from other individuals while writing any test or the exam. Students found engaging in these practices will be subject to an academic dishonesty case.
4. For the Term Tests and Final Exam, you will need to upload your solutions on the eClass testing site by scanning or taking a photo of your work as required for each question. (Note: When the allotted time is over, eClass will automatically submit whatever work/files you have uploaded. You do not have to send an email to your professor asking to check whether your work/files have been uploaded. It is your responsibility to ensure they are uploaded properly within the time provided. Such email inquiries will not be answered). **eClass will not allow uploads in the last minute of the exam.** All files must be uploaded before the last minute.
5. Both Term Tests and the Final Examination may consist of multiple-choice questions and/or worded questions.
6. If a Term Test is missed, the weight of one, and only one, missed Term Test (30%) will be automatically (no documents such as doctor notes needed) transferred to a cumulative Final Examination. If both Term Tests are missed, the cumulative Final Examination will only weigh 70%.
7. The Final Examination will be comprehensive if any one of the two Term Tests is missed. That is, if a student misses one or two Term Tests, he/she will be writing a Final Examination that includes material from the entire semester.
- 8. There are no alternative exam dates for Term Tests.**
9. If students miss the Final Examination and must defer the exam, **the deferred exam will be a cumulative examination.**
10. The Final Examination grades will not be posted by the instructor. Instead, students should check their overall grades from the York official website under their personal accounts some time after the Final Examination.
11. Online tests will be marked online, and the results will be posted on eClass or another grade site. If you need to get markers' feedback, you will need to put a request by emailing your professor within five days from the date the marks are posted. Any query after five days will not be entertained.
12. After getting markers' feedback, if you are still not satisfied then you can request your professor to re-appraise the test. However, note that the whole test, not just

the part under question, will be re-assessed. Three outcomes are possible, your mark might stay the same; increase; or decrease.

13. Accommodations must be provided within the first 2 weeks of class.
14. Your solutions need to be hand-written.
15. You are not allowed to use ANY software to solve and/or type your answers in any of your Tests/exam, if used then that will not be considered part of your Test/Exams, hence will not be marked.
16. While taking your Quizzes, Term Tests/Final Exam, the questions will sequentially be provided to you. You will be asked to answer a question and submit your answer, and then move on to the next question. **After you submit your answer to a question, there will be no further access to that question in the test.**

### Missed Tests and Exams

See above.

### Grading

The grading scheme for this course conforms to the 9-point system used in undergraduate programs at York University. For a full description of the York grading system, visit the York University [Academic Calendar](#).

GRADE	GRADE POINT	PERCENT RANGE	DESCRIPTION
A+	9	90-100	Exceptional
A	8	80-89	Excellent
B+	7	75-79	Very Good
B	6	70-74	Good
C+	5	65-69	Competent
C	4	60-64	Fairly Competent
D+	3	55-59	Passing
D	2	50-54	Marginally Passing
E	1	(marginally below 50%)	Marginally Failing
F	0	(below 50%)	Failing

## Course Schedule: Weekly Readings and Activities

### Required Course Materials

- Anderson, Sweeney, Williams, Camm, Cochran, Fry, and Ohlmann, An Introduction to Management Science: Quantitative Approaches to Decision Making, 15th Edition, 2019 South-Western Cengage Learning.
- Supporting/Additional material (if any) will be posted on the course website.
- **Material can be purchased from the YU Bookstore.**

### Optional Materials

- Spreadsheet Modeling and Decision Analysis, A Practical Introduction to Business Analytics, 8th edition, C.T. Ragsdale, 2016.

### Course Schedule

\*Virtual day is for your planning purposes only. You can view the digital (Audio recorded) lectures at ANY time during the week as your schedule permits.

Lecture	Date	Topic	Quiz/Chapters
1	Sep 9	Introduction to Optimization, LP - Graphical Method	Ch. 2
2	Sep 16	LP Sensitivity Analysis	Ch. 3
3	Sep 23	LP Applications	Ch. 4
4	Sep 30	Integer LP& 0-1 variables	Ch. 7
5	Oct 7	Distribution and Network Models	Ch. 6
	<b>Oct 14</b>	<b>No-Class: Reading Week</b>	
6	Oct 21	Multicriteria Decisions (14.4, 14.5, 14.6 related to AHP Model are omitted.)	Ch. 14
	<b>Oct 23 SUNDAY</b>	<b>Common Term Test 1 (Lectures 1 – 3): 6:00pm-8:30pm Location: ONLINE on eClass</b>	
7	Oct 28	Advanced LP Applications	Ch. 5.1, 5.2, and 5.3
8	Nov 4	Advanced LP Applications (cont.)	Ch. 5.4
	<b>Nov 6 SUNDAY</b>	<b>Common Term Test 2 (Lectures 4 – 6): 2:00pm-4:30pm Location: ONLINE on eClass</b>	
9	Nov 11	Nonlinear Optimization Models	Ch. 8

10	Nov 18	Time Series Analysis and Forecasting	Ch. 15
11	Nov 25	Simulation	Ch. 12
12	<b>Common Final Exam (Lectures 7 – 11)</b> (Date, time & location to be announced on registrar/university website)		

## Course Policies

All students are expected to familiarize themselves with the following information:

- [Common University and Course Policies](#) (deferred exams, 20% rule, etc)
- [Student Rights & Responsibilities](#)
- [Academic Accommodation for Students with Disabilities](#)

**Please also review the following course policies:**

### Deferred Standing

Deferred standing may be granted to students who are unable to write their FINAL examination at the scheduled time (due to illness or other extenuating circumstances) or who are unable to submit their outstanding course work by the end of the term.

Deferred standing requests for ADMS and DEMS courses should follow the [procedure and registration](#) outlined on the School's online registration system. The system will issue a ticket number.

Requests should be emailed to the main office of the School of Administrative Studies ([apsas@yorku.ca](mailto:apsas@yorku.ca)) no later than seven (7) days from date of the final exam (or from the last date to submit term course work, for any request to defer a component other than the final exam). Requests should include your **ticket number** as issued by the online registration system, a completed **Deferred Standing Agreement form** (DSA) and relevant supporting documentation. *Note: As communicated on March 13, 2020, Senate Executive has waived until further notice the requirement for students to submit an Attending Physician's Statement in support of a request for deferred standing or petitions.*

Requests will be considered on their merit and decisions will be made on a case-by-case basis. Decisions will be made available on the online portal. No individualized communication will be sent by the School to students (no letter or e-mails).

**To be clear, deferred exams in this course will be cumulative exams.**

## Academic Integrity

In this course, we strive to maintain academic honesty to the highest extent possible. Please familiarize yourself with the meaning of academic integrity by completing [SPARK's Academic Integrity module](#) at the beginning of the course. Breaches of academic honesty range from cheating to plagiarism (i.e., the improper crediting of another's work, the representation of another's ideas as your own, etc.). All instances of academic dishonesty in this course will be reported to the appropriate University authorities and can be punishable according to the [Senate Policy on Academic Honesty](#).

## Accessibility

While all individuals are expected to satisfy the requirements of their program of study and to aspire to achieve excellence, the University recognizes that persons with disabilities may require reasonable accommodation to enable them to perform at their best. The University encourages students with disabilities to register with [Student Accessibility Services](#) to discuss their accommodation needs as early as possible in the term to establish the recommended academic accommodations that will be communicated to Course Directors through their Letter of Accommodation (LOA).

Please let your instructor know as early as possible in the term if you anticipate requiring academic accommodation so that we can discuss how to consider your accommodation needs within the context of this course. Sufficient notice is needed so that reasonable steps for accommodation can be discussed. Accommodations for tests/exams normally require three (3) weeks (or 21 days) before the scheduled test/exam to arrange.

## Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community, and making reasonable and appropriate [accommodations to adherents for observances of special significance](#). Should any of the dates specified in this syllabus for course examinations, tests, or deadlines conflict with a date of religious significance, please contact the instructor within the first three (3) weeks of class. If the date falls within the formal examination periods, you must complete and submit a [Religious Accommodation for Examination Form](#) at least three (3) weeks before the start of the exam period.

## Intellectual Property

Course materials are designed for use as part of this particular course at York University and are the intellectual property of the instructor unless otherwise stated. Third-party copyrighted materials (such as book chapters, journal articles, music,



videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian copyright law. Students may not publish, post on an Internet site, sell, or otherwise distribute any course materials or work without the instructor's express permission. Course materials should only be used by students enrolled in this course.

Copying this material for distribution (e.g., uploading material to a commercial third-party website) may lead to a charge of misconduct according to York's [Code of Student Rights and Responsibilities](#), the [Senate Policy on Academic Honesty](#), and/or legal consequences for copyright violations.

### **Student Conduct in the Learning Environment**

York University is committed to fostering teaching and learning environments that are free of disruptive and/or harassing behaviour, are physically safe, and conducive to effective teaching and learning. Students and instructors are expected to maintain a professional relationship characterized by courtesy, civility, and mutual respect and to refrain from actions disruptive to such a relationship. Individuals who fail to adhere to such standards and who violate University or public law may be subject to disciplinary action by the University.

For more information, see the policies on [Disruptive and/or Harassing Behaviour in Academic Situations](#), the [Student Conduct and Responsibilities](#), and the [Code of Student Rights & Responsibilities](#).

### **Netiquette for eClass and Online Learning**

Students and instructors have a joint responsibility to create and maintain a welcoming and inclusive learning environment. All students are expected to conduct themselves in accordance with the [Code of Student Rights and Responsibilities](#). Please review and familiarize yourself with behaviours that support "netiquette" in virtual classrooms by consulting the [Guide to Netiquette](#) and [Student Guide to eLearning](#).

### **Student Notice of Recording for Online Teaching and Learning**

Activities for this course involve recording, in partial fulfillment of the course learning outcomes. Images, audio, text/chat messaging that have been recorded may be used and/or made available by the University to students enrolled in the course and those supporting the course for the purpose of materials review, for assessment, etc. Recordings will be managed according to the University's Common Record Schedule and will be securely destroyed when no longer needed by the University. Your personal information is protected in accordance with York University's [Guidelines on Access of](#)

[Information and Protection of Privacy](#) and the [Freedom of Information and Protection of Privacy Act](#). Access to online materials, including recordings or live meetings, is subject to York University's [Senate Policy on Computing and Information Technology Facilities](#).

The University will use reasonable means to protect the security and confidentiality of the recorded information, but cannot provide a guarantee of such due to factors beyond the University's control, such as recordings being forwarded, copied, intercepted, circulated, disclosed, or stored without the University's knowledge or permission, or the introduction of malware into computer system which could potentially damage or disrupt the computer, networks, and security settings. The University is not responsible for connectivity/technical difficulties or loss of data associated with your hardware, software, or Internet connection.

By engaging in course activities that involve recording, you are consenting to the use of your appearance, image, text/chat messaging, and voice and/or likeness in the manner and under the conditions specified herein. In the case of a live stream recording, if you choose not to have your image or audio recorded, you may disable the audio and video functionality. If you choose to participate using a pseudonym instead of your real name, you must disclose the pseudonym to your instructor in advance to facilitate class participation.

You are not permitted to disclose the link to/URL of an event or an event session recording or copies of recording to anyone, for any reason. Recordings are available only to authorized individuals who have been directly provided the above instructions/link for their use. Recordings for personal use, required to facilitate your learning and preparation of personal course/lecture notes, may not be shared with others without the permission of the instructor or event coordinator, and may not be published, posted, linked to, or otherwise made available online, including on social media feeds, even if those feeds are private.

## **Health and Safety**

All York students and instructors share responsibility for the safety and well-being of the community while on York's campuses. Please continue to check [YUBetter Together](#) for the latest information on health and safety.

## **Student Support and Resources**

To help you succeed academically, York University offers a wide range of resources and services. Everything from writing workshops and peer mentorship to wellness

support and career guidance is available to fulfill our LA&PS students' needs. Explore the links below to access these on-campus resources:

- [Academic Advising](#) is available to provide students support and guidance in making academic decisions and goals.
- [Student Accessibility Services](#) are available for support and accessibility accommodation when required.
- [Student Counselling, Health & Wellbeing](#) offers workshops, resources, and counselling to support your academic success.
- [Peer-Assisted Study Sessions \(PASS\) Program](#) provides student study sessions for students to collaborate and enhance their understanding of course content in certain courses.
- [Student Numeracy Assistance Centre at Keele \(SNACK\)](#) supports students in courses involving math, stats, and Excel.
- [The Writing Centre](#) provides multiple avenues of writing-based support including drop-in sessions, one-to-one appointments, a Multilingual Studio, and an Accessibility Specialist.
- [ESL Open Learning Centre \(OLC\)](#) supports students with building proficiency in reading, writing, and speaking English.
- [Learning Skills Services](#) provides tips for time management, effective study and learning habits, keeping up with coursework, and other learning-related supports.
- [Learning Commons](#) provides links to supports for time management, writing, study skills, preparing for exams, and other learning-related resources.
- [Roadmap to Student Success](#) provides students with timely and targeted resources to help them achieve academic, personal, and professional success.
- [Office of Student Community Relations \(OSCR\)](#) is responsible for administering the [Code of Student Rights & Responsibilities](#) and provides critical incident support.
- [goSAFE](#) is staffed by York students and can accompany York community members to and from any on-campus location, such as the Village Shuttle pick-up hub, parking lots, bus stops, or residences.

For a full list of academic, wellness, and campus resources visit [Student Support & Resources](#).