

**YORK UNIVERSITY**  
Liberal Arts & Professional Studies  
Introduction to Management Science  
Summer (SU) 2023, AP/ADMS **3330 Section B** (Online)

## Course Information

Course Instructor: Dr. Hassan Qudrat-Ullah

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Course Days & Time: Wednesday

7:00 pm – 10:00pm

Wednesday is selected for lecture posting day.

Class Location: Online delivery

Course eClass site:

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

## Prerequisite

*AP/ADMS 2320 3.00. Course credit exclusion: AP/ADMB 3330 3.00.*

## Tutorials

Tutorial video sessions by designated TA in pre-recorded PowerPoint format will be posted in the course eClass site. Further information will be posted on the course eClass site.

## 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.

## 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.

Each week, the related material such as audio/video lecture files and/or lecture notes for each online class scheduled below will be posted on the eClass site a week in-advance. Students are expected to go over the audio/video files, read the chapter(s) and go over the lecture notes before the scheduled class time. There will be NO synchronous ZOOM classes except the professor might schedule office hours before the Term Tests and the Final Exam.

## Technical Requirements

Students who are enrolled in this course must have access to a laptop or desktop computer with a camera and microphone and/or a smart device with these features. Students who are enrolled in this course will be expected to use ZOOM software to attend occasional meeting/s.

***Students must also have a stable Internet connection, or they will be facing significant challenges throughout the course.***

During test/exam students may be asked to turn on camera for confirmation of identity. Here are some useful links for student computing information, resources, and help:

Several platforms will be used in this course (e.g., eClass, Zoom, etc.) through which students will interact with the course materials, the course director/TA, as well as with one another.

It is your decision to enrol in this online section. If you believe that it is highly likely that you might face one or more of the following: internet connection problem(s); laptop/computer crashing issues; fire alarm going off while you are taking a test; power

outages happening in your residence; or any other related problem(s), then it might be best for you to enrol in an in-class section.

For online courses we apply the following policy strictly: Once you click on the “**Attempt the Testing Component**” link, then it means that you are signed-in and whatever work you provide will be marked. Even if you just click and quickly log out, you are still considered as you wrote that testing component. We do not accept any requests of asking us to assume that you have not attempted that testing component.

## Using Zoom

Students shall note the following:

- Zoom is hosted on servers in the United States and Canada. Recordings done since May 1, 2022 are stored in Canada. For more information, please refer to the notes on [Zoom Privacy and Security](#) provided by Information Security at York.
- If you have privacy concerns about your data, provide only your first name or a nickname when you join a session.
- The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.

Here are some useful links for student computing information, resources, and help:

- [Student Guide to eClass](#)
- [Zoom@YorkU Best Practices](#)
- [Zoom@YorkU User Reference Guide](#)
- [University Information Technology \(UIT\) Student Services](#)
- [Student Guide to eLearning at York University](#)

To determine Internet connection and speed, there are online tests, such as [Speedtest](#), that can be run. If you need technical assistance, please consult the [University Information Technology \(UIT\) Student Services](#) web page. For more specific assistance, please write to [askit@yorku.ca](mailto:askit@yorku.ca).

## 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. They will be answered within 24 to 72 hours' time except for 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 etc. 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.*

## Course Evaluation

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

## General Course Policy

1. **WARNING:** Distribution or uploading of course content is STRICTLY PROHIBITED. All material is copyright protected.
2. Concerns regarding marks **will not be entertained after a week** from the release of the marks/result.
3. Students will not be allowed to write the term tests, or the final exam, unless they are on the class list.
4. Due to unavoidable circumstances if any lecture is missed due to technical reason, date for make-up lecture will be announced on course web site.
5. Please ensure you read all documentation on the course eClass site.

6. It is your responsibility to visit course eClass site on a regular basis.
7. If you have a query about the questions solved in any tutorial session, communicate directly with the tutor, if you are not satisfied with the reply of your tutor, then contact your professor.
8. Due to high volume of emails during remote learning, it might be possible that replies to your email queries might take longer than usual. Please expect no (or limited) response to your e-mails during the weekends.
9. Please note that this is an online course. The entire course, including the lectures, participation/discussion, and test/exam-taking, will take place on the course website on eClass.
  - the recordings should be used for educational purposes only and as a means for enhancing accessibility.
  - 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](#)).
  - all recordings will be destroyed after the end of classes.
10. For some common language about academic integrity, and the online tools used to promote it, please read the section below.

### **Assessment Descriptions**

1. The two Term Tests and the Final Examination will be held online at the same time for all students. Both 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.
2. Information concerning the Term Tests and Final Exams will be posted on course eClass site.
3. Both term tests and the final examination consist of multiple-choice questions and worded questions.
4. Two Term Tests, each of which is worth 30% of your overall grade.
5. If you miss a term test, the weight of one and only one missed test (30%) will be automatically (no documents such as doctor notes needed) transferred to the final examination. If you miss both term tests, your final examination will only weigh 70%.

6. The final examination will be comprehensive if you miss any one or both term tests. That is, if you miss one term test, or both you will be writing a final exam that includes material from the entire semester. Duration of Comprehensive Final Exam might be different than the Regular Final Exam.
7. A Cumulative Formula Sheet will be posted on your course's eClass website. You can use this formula sheet in all of your Tests/Exam.
8. **There are no alternative exam dates and times for the Term Tests.**
9. If students miss the Final Examination and have to defer the exam, the deferred exam will be a **comprehensive** examination.
10. Due to concerns regarding copyright issues, online tests (Term Tests/Final Exam) are treated as purely **assessment tools**. If you do not miss a regularly scheduled test, you will not be tested on the material covered in that test again. Hence, the feedback regarding tests will be given to students as explained in the next two points.
11. Online tests will be marked online, and the results will be posted on your course's eClass 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. It is your responsibility to visit the eClass on regular basis.
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 the part you like will be re-assessed, three outcomes are possible, your marks might stay the same; increase; or decrease.
13. Your solutions need to be hand-written! (Typed work not acceptable, hence will not be marked)
14. 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/Exam, hence will not be marked.
15. Once you start any Testing Component (Tests or Exam) you are digitally signed for that testing component. If you quit after starting a test, then whatever you attempted will be marked and will be in your records.
16. If you need religious accommodations, please follow the York University policy/procedure, and once approved, update your professor at least 96 hours prior to the testing component.

17. Tests and Final Exam will all be online. For the Tests and Final Exam, you will need to upload on the eClass site a scan or 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**. *Note that the files must have been already uploaded though, and this needs to be done before the last minute of the given time.* You do not have to send an email to your professor asking to check whether or not your work/files have been uploaded. It is your responsibility to ensure they are uploaded properly within the time provided and the files are executable. Such email inquiries will not be answered.)
18. Due to strict copyright rules MCQs cannot be reviewed online. If you want to, you can apply for re-appraisal, and your professor will re-appraise it and update you of the outcome.
19. While taking your Tests/Final Exam, the problem-solving questions will be provided to you in a sequential manner. 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**

Read point number 5 under “Assessment Description”.

### **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](#).

### **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.

#### **Optional Materials**

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

Supporting/Additional material (if any) will be posted on the course website.

## 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.*

Session	Date	Topic	Quiz/Chapters
1	May 10	Introduction to Optimization LP Graphical Method	Chapter 2
2	May 17	LP Sensitivity Analysis	Chapter 3
3	May 24	LP Applications	Chapter 4
	<b>May 31</b>	<b>No Class – Congress of the Humanities and Social Science</b>	
4	June 7	Integer LP & 0-1 Variables	Chapter 7
	<b>June 11 SUNDAY</b>	<b>Term Test I at 6:00 pm Location: ONLINE on eClass Details: TBA</b>	<b>Chapters 2, 3, and 4</b>
5	June 14	Distribution and Network Models	Chapter 6
6	June 21	Multicriteria Decisions	Chapter 14
	<b>June 28</b>	<b>No Class – Reading Week</b>	
7	July 5	Time Series Analysis and Forecasting	Chapter 15
8	July 12	LP: Simplex Method (Part-I)	Chapter 17 (Cengage website)
	<b>July 16 SUNDAY</b>	<b>Term Test II at 6:00 pm Location: ONLINE on eClass Details: TBA</b>	<b>Chapters 6, 7, and 14</b>
9	July 19	LP: Simplex Method (Part-II)	Chapter 17 (Cengage website)
10	July 26	Nonlinear Optimization Models	Chapter 8
11	August 2	Simulation	Chapter 12

Common Final Examination\*\*

(August 17-24) (Date and time to be announced on registrar's/university website)

\* If the student wrote both term tests, Coverage will be Chapters 8, 12, 15 and 17. If a student misses a term test (or both term tests), his/her final exam will be a more balanced comprehensive exam that covers all chapters.



## Relevant University / LA&PS/School Regulations

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

- [Student Rights & Responsibilities](#)
- [Academic Accommodation for Students with Disabilities](#)
- [University & School Policies](#)

## Deferred Standing

In addition to the information under the above link.

**NOTE: The deferred examination will be cumulative/comprehensive and cover all material for the semester. This applies to all students writing a deferred Final Exam, including those who wrote both Test 1 and Test 2.**

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