RYERSON UNIVERSITY

Ted Rogers School of Information Technology Management
And G. Raymond Chang School of Continuing Education

(C)ITM 107 – Managerial Decision Making

COURSE OUTLINE FOR 2020-2021

1.0 PREREQUISITE(S)

None

2.0 INSTRUCTOR INFORMATION

- Name:

- Office Phone Number:

- E-mail address:

- Faculty/course web site(s): https://my.ryerson.ca

- Office Location & Consultation hours:

  ➢ Your instructor is available for virtual consultation during scheduled consultation hours. Information on the consultation format is provided in the D2L course shell. If you wish to make an appointment, kindly do so via email to ensure the professor is available.

- E-mail Usage & Limits:

Students are expected to monitor and retrieve messages and information sent through D2L and Ryerson email on a frequent and consistent basis. In accordance with the policy on Ryerson student email accounts (Policy 157), Ryerson requires that any electronic communication by students to Ryerson faculty or staff be sent from their official Ryerson email account. Messages from other accounts may be disregarded.

3.0 CALENDAR COURSE DESCRIPTION

The course emphasizes how to apply various mathematical techniques in the support of managerial decisions in the various functional areas of business. It is subdivided into three major parts: part one covers the study of linear phenomena, including linear functions, matrices, systems of linear equations, linear inequalities, and linear programming; part two covers non-linear phenomena and focuses mainly on quadratic, exponential, and logarithmic functions; and part three examines probability concepts including uncertainties, conditional probability, and Bayes' formula.

4.0 COURSE OBJECTIVES AND LEARNING OUTCOMES
Learning outcomes describe what students are expected to have learned or achieved; as a result, they usually describe what students will be capable of doing, or what evidence will be provided to substantiate learning.

The course emphasizes how to apply various mathematical techniques in the support of managerial decisions in the various functional areas of business. Topics covered include: Review of basic algebra (including linear, quadratic and other special functions), matrices, systems of linear equations, inequalities and linear programming, exponential and logarithmic functions, and probability concepts.

- Understand the "set" concept and set operations
- Analyze the relationship between two or more variables
- Solve systems of linear equations
- Model inequalities, build two-dimensional linear optimization models and carry out sensitivity analyses
- Graph common non-linear functions and analyze trends
- Understand random events and calculate their probabilities

5.0 TEXTS & OTHER READING MATERIALS

The textbook we will use for this course will be online. No physical hard copies will be required. Students need to use the following information to purchase access to the textbook material at the bookstore:

WebAssign Instant Access for Harshbarger/Reynolds' Mathematical Applications for the Management, Life, and Social Sciences, Multi-Term – 9781337630559.

6.0 TEACHING METHODS

In Fall 2020 this course will be taught will be taught remotely in virtual classrooms. Instruction will take place at scheduled hours, following the approach outlined in D2L Brightspace. You will not be required to attend the Ryerson University campus to complete this course.

The course will be delivered in the form of lectures on the basic methods and techniques for managerial decision-making, followed by a Lab where students will work on practice questions and exercises to apply the concepts covered in the lecture.

7.0 EVALUATION, ASSESSMENT AND FEEDBACK

The grade for this course is composed of the mark received for each of the following components:

Evaluation Component	Percentage of the final grade
Assignments (10 assignments worth 1% per assignment)	10%
Participation	10%
Test 1	25%
Test 2	25%
Final exam	30%

Rules regarding missed tests and exam:

1. If a student misses Test 1 OR Test 2 because of legitimate reasons, then the missed test's weight gets shifted to the final exam
2. If a student misses Test 1 AND Test 2 because of legitimate reasons, then Test 1 weight gets shifted to the final exam, but the student gets to write a makeup for Test 2
3. If a student misses final exam because of legitimate reasons, then the student has to write a makeup exam.

NOTE: Students must achieve a course grade of at least 50% to pass this course.

❖ At least **20%** of student's grade based on individual work will be returned to students prior to the last date to drop a course in good academic standing .

Citation Format for Essays and Term Papers
All essay assignments, term paper and other written works must adhere with APA citation format. Technical errors (spelling, punctuation, proofing, grammar, format, and citations) and/or inappropriate levels of language or composition will result in marks being deducted. You are encouraged to obtain assistance from the Writing Centre (www.ryerson.ca/writingcentre) for help with your written communications as needed.

You can find APA guidelines and academic referencing from the following online resources:

Student Learning Support > Online Resources > Writing Support Resources
- APA Basic Style Guide

Ryerson Library Citations and Style Guides
- APA Style

8.0 PLAGIARISM DETECTION

Virtual Proctoring

Online exam(s) within this course use a virtual proctoring system. Please note that your completion of the exam will be recorded via the virtual platform and subsequently reviewed by your instructor. The virtual proctoring system provides the instructor with a recording that only includes video where possible indications of suspicious behaviour are identified. Recordings will be held for a limited period of time in order to ensure academic integrity is maintained.

Access to a computer that can support remote recording is your responsibility as a student. The computer should have the latest operating system, at a minimum Windows (10, 8, 7) or Mac (OS X 10.10 or higher) and web browser Google Chrome or Mozilla Firefox. You will need to ensure that you can complete the exam using a reliable computer with a webcam and microphone available, as well as a high-speed internet connection. Please note that you will be required to show your Ryerson OneCard prior to beginning to write the exam. In cases where you do not have a Ryerson OneCard, government issued ID is permitted.

Information will be provided prior to the exam date by your instructor who may provide an opportunity to test your set-up or provide additional information about online proctoring. Since videos of you and your environment will be recorded while writing the exam, please consider preparing the background (room / walls) so that personal details are not visible, or move to a room that you are comfortable showing on camera.

9.0 TOPICS – SEQUENCE & SCHEDULE

Session	Topic	Learning Outcomes	Reading(s)
1	Sets and Set Operations	By the end of this lecture, you should be able to use sets and set operations in modelling various logical statements.	Section 0.1
2	Functions	By the end of this lecture, you should be able to: 1. Represent relationships between two or more variables, using the concepts of sets and functions 2. Model, describe and graph linear relationships using the concepts of slopes and intercepts.	Sections 1.2 and 1.3
3	Matrices	By the end of this lecture, you should be able to use matrices and carry out algebraic operations on them.	Sections 3.1 and 3.2
4	Matrices (Cont'd)	By the end of this lecture, you should be able to:	

		- Identify the augmented matrix of a system of linear equations
		- Carry out row operations on an augmented matrix to solve a system of linear equations
		    o in the case where the system is square with a unique solution
		    o in the case where the system is square with non-unique solutions (i.e., either with no solution at all, or with an infinite number of solutions)
		    o in the case where the system is non-square
		- Solve a system of linear equations using matrix inverses
			Sections 3.3 and parts of 3.4

5	**Test 1 – Test 1 grades will be available on D2L on or before Week #8**		
6	Linear Programming (LP)	By the end of this lecture, you should be able to: ● Explain the concept of optimization of a linear expression subject to a set of constraints ● Model linear optimization problems ● Solve 2-dimensional linear programming models using graphical/algebraic methods	Sections 4.1 and 4.2

7	LP Sensitivity Analysis	By the end of this lecture, you should be able to assess the impact of changing specific LP model parameters on the optimal solution, using graphical/algebraic methods	**To be provided by instructor**
8	Quadratic Functions	By the end of this lecture, you should be able to: 1. Analyze phenomena governed by quadratic expressions, find the vertex, the maximum/minimum, and the intercepts 2. Solve quadratic equations 3. Apply quadratic expressions for various business problems, such as finding break-even points and market equilibria.	Sections 2.1, 2.2, and 2.3
9	Exponential and Logarithmic Functions	By the end of this lecture, you should be able to: ● Define, graph and compare exponential and logarithmic functions to each other and to power functions. ● Analyze properties of exponential and logarithmic functions. ● Solve various equations involving exponential and/or logarithmic expressions	Sections 5.1, 5.2, and 5.3
10	**Test 2 – Test 2 grades will be available on D2L on or before Week #12**		
11	Introduction to Probability	By the end of this lecture, you should be able to model random phenomena and compute the probability of single and multiple events.	Sections 7.1 and 7.2
12	Conditional Probability and Bayes Formula	By the end of this lecture, you should be able to calculate conditional probabilities, and	Sections 7.3 and 7.4

		update an estimate of a probability using newly available information.	

10.0   VARIATIONS WITHIN A COURSE

All sections of a course (Day and CE sections) will follow the same course outline and will use the same course delivery methods, methods of evaluation, and grading schemes. Any deviations will be posted on D2L Brightspace once approved by the course coordinator.

11.0   OTHER COURSE, DEPARTMENTAL, AND UNIVERSITY POLICIES

For more information regarding course management and departmental policies, please consult the Course Outline Appendix which is posted on the Ted Rogers School of Information Technology Management website.

NOTE: Students must adhere to all relevant university policies found in their online course shell in D2L and /or on the following URL: senate-course-outline-policies.

The appendix covers the following topics:

Attendance & Class Participation

Email Account

Request for Academic Consideration

Examinations & Tests

Late Assignments

Standard of Written Work

Academic Grading Policy

Academic Integrity

Student Rights

Important Resources Available at Ryerson

- Academic Accommodation Support: Ryerson University acknowledges that students have diverse learning styles and a variety of academic needs. If you have a diagnosed disability that impacts your academic experience, connect with Academic Accommodation Support (AAS). Visit the AAS website or contact aasadmin@ryerson.ca for more information. Note: All communication with AAS is voluntary and confidential, and will not appear on your transcript.

- [The Library](#) provides research workshops and individual assistance. If the University is open, there is a Research Help desk on the second floor of the library, or go to [Workshops.](#)

- [Student Learning Support](#) offers group-based and individual help with writing, math, study skills, and transition support, as well as [resources and checklists to support students as online learners](#).

- You can submit an [Academic Consideration Request](#) when an extenuating circumstance has occurred that has significantly impacted your ability to fulfill an academic requirement.

- [Ryerson COVID-19 Information and Updates for Students](#) summarizes the variety of resources available to students during the pandemic.

- Familiarize yourself with the tools you will need to use for remote learning. The [Continuity of Learning Guide](#) for students includes guides to completing quizzes or exams in D2L or Respondus, using D2L Brightspace, joining online meetings or lectures, and collaborating with the Google Suite.