Commerce 2DA3
Decision Making with Analytics
Fall 2024 Course Outline – Tentative

Operations Management Area
DeGroote School of Business
McMaster University

INSTRUCTOR AND CONTACT INFORMATION

Cohort 6: Fri 8:30 AM – 11:20 AM
S. Hossein Alavi, Ph.D.
Instructor
Alavis1@mcmaster.ca

Office hours: TBD

Student TA
TBD
TBD@mcmaster.ca
Office Hours: TBD

TA information, tutorial schedule, and office hours to be announced on Avenue to Learn (A2L)

COURSE ELEMENTS

Credit Value:	3	Leadership:	No	IT skills:	Yes	Global view:	Yes
A2L:	Yes	Ethics:	Yes	Numeracy:	Yes	Written skills:	Yes
Participation:	Yes	Innovation:	Yes	Group work:	No	Oral skills:	Yes
Evidence-based:	Yes	Experiential:	Yes	Final Exam:	Yes	Guest speaker(s):	No

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COURSE INFORMATION

Lectures: 3hr x1/Week
Tutorials: 1hr/week
Course Delivery Mode: In-person
Course Description: The course will study five widely used quantitative management science tools (data visualization, problem modelling, linear programming, decision analysis, and simulation) used in business data analytics when conditions are reasonably certain or somewhat uncertain. All five tools are implemented in Excel and Power BI. The course is taught through lectures, computer work with Excel, lecture notes and textbook readings, practice problems, and tutorials.

MEETING DETAILS

Cohort 6 Meets from 8:30 AM to 11:20 AM every Friday for the **classes**

The **first class** for the 6th cohort will be on Friday, September 6th, 2024

IMPORTANT LINKS

- Mosaic
- Avenue to Learn
- Student Accessibility Services - Accommodations
- McMaster University Library

COURSE LEARNING OUTCOMES

Upon successful completion of this course, students will be able to complete the following key tasks:

➢ Using analytics to create Excel models of decision problems which occur in different business functional areas such as operations, finance, and marketing.
➢ Visualize business-oriented models and their outcomes in Excel and Power BI, draw meaningful conclusions by using plots, tables, and many built-in functions.
➢ Formulate decision problems. Use Excel Solver to model and solve these problems, perform sensitivity analysis, and determine the marginal value of the resources used.
➢ Analyze business decision problems under uncertainty and risk using payoff tables and decision-tree models in Excel.
➢ Use Excel to model and analyze business processes using simulation models.

COURSE LEARNING GOALS

The analysis of decision problems is an essential part of the modern business world. This course will provide an understanding of the usefulness of descriptive and prescriptive business analytics: linear programming, decision analysis, practical use of MS Power BI, and simulation as decision-making aids for business problems.

REQUIRED MATERIALS AND TEXTS

Textbook: Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. Business Analytics. Fourth Edition, Cengage Learning (2020)

➢ The textbook is highly recommended but is not required. Any new book, used book, electronic book, etc. can be used. The electronic book is an e-**text specifically designed for this course and has a lower price**; it is sold via Access Code in the Bookstore for around $80. Click here to go to the Bookstore Buy Access Codes Online.
➢ This course uses http://avenue.mcmaster.ca to post the outline, lecture notes, and feedback.

Software:

Students are encouraged to use computer in class. The following software is used in the course:

▪ **Excel**: Excel 2010 or later is preferred. Microsoft Office 365 is available for students.

▪ **Power BI**: Power BI is available for students.

▪ **Excel Solver add-in**: Available in Excel on Windows and Mac.

▪ **TreePlan**: Excel add-in for building and analyzing decision trees. Available on Avenue.

➢ First completely update Microsoft Office. Then completely update Excel**. If Excel is not completely updated the add-ins and modules may not work**.
➢ Students may need to **set the security setting on Excel to 'medium' to 'enable' the 'macros' in these programs**.
➢ All software runs on a Windows; students using a Mac must ensure that the software runs properly on their computer. Students will **be tested at the Midterm and Final Exams on their proficiency with the software**. Some quiz questions will require students to **use Excel and/or Power BI**.

Students are encouraged to **attend class**, and to bring their textbook, computer and the lecture notes (either electronic or paper form) to class. Students are expected to read the assigned materials in the textbook before coming to class.

CLASS FORMAT

This is an **in-person 3hr (class) + 1hr(tutorial)** course. The three hours will consist of lectures, lengthier discussion, and in-depth applied exercises (not necessarily always in this order). There will be one or two short break(s) part way through at a convenient time based on what we are working on. Please use this time to take care of personal needs of various kinds.

Tutorials are designed to familiarize you with the course topics and to give you a chance to practice course material, see different question types. All tutorial questions and solutions will be posted on Avenue to Learn. Tutorials will be led by a TA.

COURSE EVALUATION

Your grade of this course will be the **higher** one between the two calculated from Schemes 1& 2 below.

Component	Scheme 1	Scheme 2	Description
Midterm Exam	30%	40%	Approx. 2 hours and 30 mins,
Final Exam	40%	30%	Approx. 2 hours and 30 mins
Quizzes x 4	7.5% each		A2L, approx. 30 mins
Total	100%	100%	

Marks: Marks are posted on Avenue to Learn. Exams are not returned. Students must first review their Exam with the TA during office hours within two weeks of the marks being posted on Avenue. After this, for any unresolved matters, students can review their exams with the instructor during office hours.

Final Grades: At the end of the course overall percentage grades are converted to a letter grade in accordance with the following conversion scheme (there is also an Excel file enabling you to calculate your final grade based on your score estimations – see 1c-Grade calculator on the avenue page of the course):

Letter Grade	Percentage	Letter Grade	Percentage
A+	90 – 100	C+	67 – 69
A	85 – 89	C	63 – 66
A-	80 – 84	C-	60 – 62
B+	77 – 79	D+	57 – 59
B	73 – 76	D	53 – 56
B-	70 – 72	D-	50 – 52
		F	00 – 49

COURSE DELIVERABLES

Quizzes: There are 4 individual quizzes in this course with 7.5% each. They are all 20 – 30 minutes long and aim to prepare you for the major exams (midterm/final). The first 2 quizzes will be before the Midterm Exam and the last two will be after it. Quizzes will be accessible through A2L.

Exams: Both the Midterm Exam and the Final Exam are 2.5 hours long and will be in-person held at the McMaster main campus. The exam room will be announced on A2L as we approach the exam date. Do note that the exam will have a hybrid format which will combine paper-based questions and laptop using the tools and techniques taught in the lectures, so make sure that you bring your laptop fully charged to the exam. The Final Exam is non-cumulative; rather it only tests material since the Midterm Exam. However, the first few topics (covering Excel functions, Power BI, and models) are essential, and the later chapters are built on that knowledge. Both exams will include questions which test students' proficiency with the software and the analytics methodologies in the course. For software-based questions, the students will be asked to submit Excel/Power BI files to Avenue.

LATE ASSIGNMENTS

Missed assignments and exams will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF. Late assignments will **not** be accepted.

COMMUNICATION AND FEEDBACK

Students who wish to correspond with instructors or TAs directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student.

All students must receive feedback regarding their progress prior to the final date by which a student may cancel the course without failure by default.
   For Level 1 and Level 2 courses, this feedback must equal a minimum of 20% of the final grade.
   For Level 3 courses and above, this feedback must equal a minimum of 10% of the final grade.

Instructors may solicit feedback via an informal course review with students by Week #4 to allow time for modifications in curriculum delivery.

Students who have concerns about the course content, evaluation methods, or delivery should first reach out to the course instructor. If your concern remains unresolved after speaking with the instructor, you may then reach out to the relevant Area Chair for further consideration.

REQUESTING RELIEF FOR MISSED ACADEMIC WORK

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work" and the link below*;

http://ug.degroote.mcmaster.ca/forms-and-resources/missed-course-work-policy/

* Non-Commerce students must follow the Missed Course Work protocols outlined by their home faculty and Program Office.

COURSE MODIFICATION

From time to time there may be a need to remove/add topics or to change the schedule or the delivery format. If these are necessary, you will be given as much advance notice as possible.

GENERATIVE AI

Students may freely use generative AI in this course so long as the use of generative AI is referenced and cited following citation instructions given in the syllabus. Use of generative AI outside assessment guidelines or without citation will constitute academic dishonesty. It is the student's responsibility to be clear on the expectations for citation and reference and to do so appropriately.

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. **It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy.

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY/PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. **All submitted work is subject to normal verification that standards of academic integrity have been upheld** (e.g., on-line search, other software). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

This course will use on-line elements (e.g. e-mail, A2L, web pages, MS Teams). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, usernames for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the Code of Student Rights & Responsibilities (the "Code"). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online.**

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in university activities. Student disruptions or behaviors that interfere with university functions on online platforms (e.g. use of A2L, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University's Academic Accommodation of Students with Disabilities policy.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by university instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, Avenue to Learn and/or McMaster email.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in Commerce **2DA3** will be considered to be an implicit acknowledgement of the course policies outlined above, or of any other that may be announced during lecture and/or on A2L. **It is your responsibility to read this course outline, to familiarize yourself with the course policies and to act accordingly.**

Lack of awareness of the course policies **cannot be invoked** at any point during this course for failure to meet them. It is your responsibility to ask for clarification on any policies that you do not understand.

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COURSE SCHEDULE

Commerce 2DA3
Decision Making with Analytics
Fall 2024 Course Schedule

Class Schedule

WEEK	DATE	Topics/Readings *Readings are in the textbook.* *Lecture Notes are on A2L.*
1	Sep 3 – 6 (No classes on Sep 2, Monday, Labor Day)	Introduction to course Ch. 1: Introduction Append. A: Basics of Excel
2	Sep 9 – 13	Append. A: Basics of Excel (Cont'd) Ch. 3: Data Visualisation Ch. 10: Spreadsheet Models
3	Sep 16 – 20	Ch. 3: Data Visualisation (Cont'd) Ch. 10: Spreadsheet Models (Cont'd) Introduction to Power BI
	Quiz 1 – Open from Sep 22, Sun, 12 noon to Sep 23, Mon, 12 noon	**Covers Data Analytics and Excel parts**
4	Sep 23 – 27	Data Visualization and Dashboards in Power BI
5	Sep 30 - Oct 4 (No class on Sep 30, Monday, National Day of Truth and Reconciliation)	Ch. 12: Linear Optimization Models
6	Oct 7 – Oct 11	Ch. 12: Linear Optimization Models (Sensitivity Analysis)
	Quiz 2 – Open from Oct 12, Sat, 12 noon to Oct 13, Sun, 12 noon	**Covers Power BI and Ch. 12 (up to what we have seen so far)**
7	Oct 14 – 20	**Midterm Recess**
8	Oct 21 – 25	Review of the Midterm topics
	Midterm – Oct 25, Friday (Tentative)	**Covers all topics so far**
9	Oct 28 – Nov 1	Ch. 15: Decision Analysis
10	Nov 4 – Nov 8	Ch. 15: Decision Analysis (Cont'd)
	Quiz 3 – Open from Nov 10, Sun, 12 noon to Nov 11, Mon, 12 noon	**Covers Ch. 12 (only the sensitivity analysis) & Ch. 15 (Decision Analysis)**
11	Nov 11 – Nov 15	Ch. 11: Monte Carlo Simulation

12	Nov 18 – Nov 22	Ch. 11: Monte Carlo Simulation (Cont'd)
	Quiz 4 – Open from Nov 24, Sun, 12 noon to Nov 25, Mon, 12 noon	**Covers Ch. 11**
13	Nov 25 – Nov 29	Solving Practice Questions
14	Dec 2 – Dec 5	**TBD**
	Final – TBA by Administrative Office	**Covers all topics since midterm + Linear Optimization Sensitivity Analysis**

Tutorial Schedule

Tutorial Section	Days & Times
T01	Th 12:30PM - 1:20PM
T02	Th 9:30AM - 10:20AM
T03	Tu 12:30PM - 1:20PM
T04	Mo 12:30PM - 1:20PM
T05	Th 8:30AM - 9:20AM
T06	We 3:30PM - 4:20PM

Notes:
1. No tutorials or office hours in the first week!
2. Contingent on the progress, the weekly schedule and topic are subject to changes at the discretion of the instructor