

Decision Analysis

AP/ADMS 3300 Section A Fall 2024

Course Information

Course Instructor: Humayun Chaudhary
Course Days: Monday
Office Hours & Location:
After the lecture.

E-mail: hrc@yorku.ca
Course Time: 2:30 pm - 5:30 pm
Class Location: DB 1005

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

Prerequisite

AP/ADMS 2320 3.0 or AK/ADMS 3320 3.0 (prior to Summer 2005)

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](#)).

Tutorials

Further information will be posted on the course eClass site.

Course Overview

Course Description

An introduction to decision analysis under conditions of certainty, uncertainty, risk and competition. Both single person and group decision making are covered. Problems from many areas of managerial decision making are considered.

Course Learning Objectives

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

- Decision Analysis theory, tools, and techniques in real world scenarios
- Structure the problem, model the decisions, develop both influence diagrams and decision trees as graphical modeling tools for representing the structure of decisions.
- Analyze and model single and multiple objective decisions situations.
- How to use sensitivity-analysis tools in concert with EMV calculations in the iterative decision-structuring and analysis process.
- Model uncertainty through the use of probability
- Gain an in-depth understanding of risk and utility theory.
- Model preferences in situations in which the decision maker has multiple and conflicting objectives.

Course Format and Organization

All classes will be held on campus. During the lecture, material will be covered as described in the course schedule.

Technical Requirements

Students are required to have a non-programmable calculator.

Course Communication Plan and Office Hours

Communication in the course will occur during lecture and through announcements and postings on the course website. If you have course related questions, you can use email to send inquiries or ask during class sessions.

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 will be held after each class.

Course Evaluation

| Assessment | Due Date | Weight % | Course Learning Outcome |
|---------------|---------------------|------------------|--|
| Attendance | Random | 5% | Assessment of participation |
| Quiz 1 and 2 | See Course Schedule | 10% [5% each] | Assessment of knowledge pertaining to specific lectures. |
| Term Test - 1 | See Course Schedule | 20% | Assessment of knowledge pertaining to specific lectures. |
| Term Test - 2 | See Course Schedule | 20% | Assessment of knowledge pertaining to specific lectures. |
| Final Exam | See Course Schedule | 45% | Assessment of knowledge pertaining to specific lectures. |
| | | 100% | |

In-Class Sessions Requirements/restrictions

- ***When class sessions are conducted in person, the use of electronic gadgets such as laptops/notebooks/tablets, smart phones, or cell phones is NOT allowed in the classroom.***
- Please keep your electronic gadgets in your bag, they should not be on your desk.
- If there is anything urgent requiring your attention, you may leave the classroom quietly, without disturbing your classmates, and use your gadget outside.
- No excuses (e.g., use of e-book, use of slides or taking notes directly on the gadget) will be accepted.

Attendance

1. Attendance will be taken at random during six out of the eleven scheduled class sessions throughout the semester. The six sessions will be selected at random.
2. Students must be in attendance with no exceptions to count as present in the class. There is no alternative for the attendance.
3. **You are not allowed to sign attendance sheet if you join the class after the start of attendance exercise.**
4. Attendances can be taken any time during the selected lecture session. **During Attendance you are not allowed to leave the room even if you signed the sheet, unless it is completed.**
5. You might need to show your photo ID, if asked.

6. Once attendance is completed during the selected lecture session, no name will be added further.
7. There might be more than one attendance taken in one lecture. Your signature needs to be on both sheets for you to be counted as attended that class in full.

General Course Policy

1. **WARNING:** Distribution or uploading of course content is STRICTLY PROHIBITED. All material is copyright protected.
2. **You are not allowed to take pictures or record any content of in-person lecture/s.**
3. Concerns regarding marks will not be entertained after a week from the release of the marks/result.
4. Students will not be allowed to write the term tests, or the final exam, unless they are on the class list.
5. 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.
6. Please ensure you read all documentation on the course eClass site.
7. It is your responsibility to visit course eClass site on a regular basis.
8. 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.

Assessment Descriptions

1. The Quizzes, Term Tests and the Final Examination will be held **in-person** (**On-campus**) at the same time for all students.
2. Information concerning the Term Tests and Final Exams will be posted on course eClass site.
3. Both term tests and the final examination will consist of multiple-choice questions and questions/problems requiring full answers/solutions. A formula sheet will be provided, if required.

Answers for Multiple Choice and True/False Questions must be recorded on a SCANTRON sheet by pencil within the designated time of the testing components. NO EXTRA time will be granted to “bubble in” the Scantrons. No Excuses (e.g., “I answered all questions. Just need to transfer to Scantron.”) will be accepted.

It is your responsibility to correctly bubble on Scantron the test/exam version under “Test Form”. Questions papers will not be returned to the students, you will get answer book which will have your MCQs portion of marks. However, you can review on individual basis during office hours. To review you must submit your request via email within five days from the return date not from your collection date. When reviewing you are not allowed to take notes, pictures or copy any part of the testing instrument.

4. Two Term Tests, each of which is worth 20% of your overall grade.
5. If you miss a term test, the weight of one and only one missed test (20%) 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 65%.
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 preparation.
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. Missed Quiz – Communicate with me.
11. 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.

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

Clemen, R. and T. Reilly, Making Hard Decisions with Decision Tools, Duxbury, 3rd Edition, 2014.

Optional Materials

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

Course Schedule

The following tentative course outline (all inclusive) is subject to "in class" changes as considered necessary by the Course Director.

| Session | Date | Topic | Chapters |
|----------|--------------------------------|---|--|
| 1 | Sep 9 | Introduction; Elements of Decision Problems | Chapter 1 Chapter 2 |
| 2 | Sep 16 | Structuring Decision Problems Decision Trees and Influence Diagrams | Chapter 3 |
| 3 | Sep 23 | Making Choices | Chapter 4 |
| 4 | Sep 30 | Model Building and Sensitivity Analysis | Quiz # 1 Chapter 1,2,3 & 4 Chapter 5 |
| 5 | Oct 7 | Uncertainty and Preference Modeling Subjective Probability | Chapter 8 |
| | Oct 14 | No Class – Reading Week | |
| 6 | Oct 21 | Term Test I at 2:30 pm Details: TBA | Chapters 1,2,3, and 4 |
| 7 | Oct 28 | Probability Basics and Bayesian Statistics Value of Information | Chapter 7 Chapter 12 |
| 8 | Nov 4 | Value of Information | Chapter 12 |
| | Nov 10 SUNDAY | Term Test II at 2:00 pm Details: TBA | Chapters 5, 7, 8 and 12 |
| 9 | Nov 11 | Utility Theory Risk Attitudes, Utility Axioms and Paradoxes | Chapter 14 Chapter 15 |
| 10 | Nov 18 | Dealing with Conflicting Objectives-I | Chapter 16 |
| 11 | Nov 25 | Dealing with Conflicting Objectives- I | Quiz # 2 Chapter 12,14,& 15 Chapter 16 |
| 12 | Dec 2 | Dealing with Conflicting Objectives II | Chapter 17 |

Common Final Examination**

(Dec 5 - 20) (Date and time to be announced on registrar's/university website)

* If the student wrote both term tests, Coverage will be Chapters 14, 15, 16 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.

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](#)
- [University and School Policies](#)

Please also review the following course policies:

Academic Integrity

As a student at York University, you have a responsibility to both understand and uphold the integrity of the academic experience. The Faculty of Liberal Arts & Professional Studies supports the International Center for Academic Integrity's [definition of academic integrity](#). That is, you will be committed to acting in all academic matters, even in the face of adversity, with honesty, trust, fairness, courage, respect and responsibility. Here is how you can demonstrate academic integrity in the completion of this course:

- **Respect the ideas of others:** Your course work should represent your own knowledge and ideas. [You should not falsely claim credit for ideas that are not your own, by presenting another's work as yours](#). If you are quoting, paraphrasing, or summarizing another person's work in order to support your own ideas, identify the work and the author through proper citation practices. For more information about how to cite properly, use the [Student Papers and Academic Research Kit](#) (SPARK). You can improve your writing, research, and personal learning abilities through the [Learning Commons](#), or by visiting the [Writing Centre](#) or [ESL Open Learning Centre](#).
- **Respect your peers:** [Know when you are allowed to collaborate](#). Ask your instructor about what group work entails when it comes to the [sharing of work](#). In test situations and assignments, don't steal or give answers to your peers, whether in-person or online (e.g., in group chats and/or on [third-party content-sharing websites](#), such as Chegg, Course Hero, etc.). Both cheating and aiding in a breach of academic honesty are violations of York University's academic honesty policy.
- **Respect your course instructor(s):** Understand what your instructors are asking of you in class, as well as on assignments, tests and/or exams. If you are unsure, ask your professor or teaching assistant. They are committed to making you feel supported and want to assess you fairly and with integrity. Please do not submit the same piece of work for more than one course without your instructor's permission. That can be considered an act of cheating.
- **Respect yourself:** When you act with integrity, you know that your work is yours and yours alone. You do not allow others to take tests for you. [You do not buy or otherwise obtain term papers or assignments](#). You do the work. As a result, you

know that you *earned* the grades that you receive, so you can be proud of your York degree. By acting with integrity in your course work, you are also practising a valuable professional skill that is important in all workplaces.

- **Take responsibility:** If you have acted in an academically dishonest way, you can demonstrate courage and take responsibility for your mistake. You can admit your mistake to your course instructor as soon as possible.

Students who engage in academic dishonesty can be subject to disciplinary action under the [Senate Policy on Academic Honesty](#). Your lack of familiarity with the Senate Policy does not constitute a defense against its application. Some academic offences can also constitute offences under the [Criminal Code of Canada](#), which means that you may also be subject to criminal charges.

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](#).

Generative Artificial Intelligence Usage Policy

Students are not permitted to use generative artificial intelligence (AI) in this course. Submitting any work created through the use of generative AI tools will be considered a violation of York University's [Senate Policy on Academic Honesty](#). If you do not know whether an online resource or tool can be used in this course, please contact your instructor for guidance. For more information, please review [AI Technology & Academic Integrity: Information for Students](#).

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) 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).

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 a cumulative exam. The deferred Final exam will be on-campus, and in-person.

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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](#).