

**FINANCE 703
Derivatives
Winter 2023 Course
Outline**

**Master of Finance
DeGroote School of Business
McMaster University**

COURSE OBJECTIVE

The goal of this course is to provide you with a good understanding of derivative securities. These securities include forward contracts, futures contracts, options, swaps and structured products. Emphases will be placed on three aspects of derivatives – the nature of their payoffs, how they are priced, and how they can be used for hedging and speculative purposes.

INSTRUCTOR AND CONTACT INFORMATION

Finance 703 Section 1 & 2

Dr. R. Luo
Instructor

TA: TBA

Class Location: in person teaching

COURSE ELEMENTS

Credit Value: 3	Leadership: No	ITskills: No	Globalview: Yes
A2L: Yes	Ethics: No	Numeracy: Yes	Written skills: No
Participation: Yes	Innovation: Yes	Groupwork: Yes	
Evidence-based: No	Experiential: No	FinalExam: Yes	

COURSE DESCRIPTION

This course provides students with an understanding of derivative securities and their markets. In particular, the course will cover the models and methods used to value those securities. The course integrates theory and practice. It will also discuss the implementation of various models, as well as their derivations.

LEARNING OUTCOMES

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

- Have a good understanding of derivative securities;
 - Select the appropriate derivative securities for hedging or speculative purposes;
 - Use the basic models or methods to price derivative securities;
 - Be able to explore more complex derivative securities.
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COURSE MATERIALS AND READINGS

Required textbook: Options, Futures, and Other Derivatives, 10th edition, by John Hull. Pearson Publisher.

COURSE OVERVIEW AND ASSESSMENT

There are four components contributing to course evaluation. Each component and its weight are listed below. Students' final percentage grades are computed based on all the weights for components.

Components and Weights

Participation	10%
Term Test 1	35%
Group Project (presentation: 10%, written report 10%)	20%
Term Test 2	35%
Total	100%

GRADING SCALE

For graduate courses the grade conversion scales are available through the following link:

[https://academiccalendars.mcmaster.ca/content.php?catoid=42&navoid=8734#2.6.1 Averaging of Letter Grades](https://academiccalendars.mcmaster.ca/content.php?catoid=42&navoid=8734#2.6.1_Averaging_of_Letter_Grades)

Master of Finance Grading Scale:

Grade	Points	Equivalent Percentages	Pass/Fail
A+	12	90-100	P+
A	11	85-89	P
A-	10	80-84	
B+	9	75-79	
B	8	70-74	
B-	7	60-69	
F	0	59 and under	F

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. Emails regarding course issues should NOT be sent to the Area Administrative Assistants. 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.

REQUESTING RELIEF FOR MISSED ACADEMIC WORK

In the event of an absence for medical or other reasons, students should review and follow the Missed Term Work regulations that are outlined on the Master of Finance website;

<https://mfin.degroot.mcmaster.ca/current-students/missed-term-work/>

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](https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

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 groupwork.
 - copying or using unauthorized aids in tests and examinations.
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COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, Canvas, Moodle, ThinkingCap, etc.). 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, user names 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 behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, 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 as@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, A2L and/or McMaster email.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in Finance **703** 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.

COURSE SCHEDULE

The following chapters will be presented.

- Chapter 1: Introduction
- Chapter 2: Futures markets and central counterparties
- Chapter 3: Hedging strategies using futures
- Chapter 5: Determination of forward and futures prices
- Chapter 10: Mechanics of options markets
- Chapter 11: Properties of stock options
- Chapter 12: Trading strategies involving options
- Chapter 13: Binomial trees
- Chapter 14: Wiener processes
- Chapter 15: The Black-Scholes-Merton model
- Chapter 17: Options on stock indices and currencies
- Chapter 18: Futures options and Black's model
- Chapter 19: The Greek letters
- Chapter 20: Volatility smiles
- Chapter 21: Basic numerical procedures