

**Finance 708
Fixed-Income Securities
Fall 2024 Course Outline**

**Area of Finance & Business Economics
DeGroote School of Business
McMaster University**

COURSE OBJECTIVE

This course provides students an understanding of the methods and models used by the financial services and investment industry to price interest-rate products and derivatives and perform risk management. This includes models based on the spot and forward rates. Students will also gain an understanding of the quantitative tools and no-arbitrage valuation theory used in interest-rate models and analysis.

INSTRUCTOR AND CONTACT INFORMATION

Instructor Name: Dr. Peter Miu
Instructor Email: miupete@mcmaster.ca
Office Address: DSB 320
Office Hours: TBA
Phone: (905) 525-9140 x 23981
Class Location: See information on Mosaic
(Tuesday 11:30 am - 2:20 pm)

TA Name: Hamidreza Masoumi
TA Email: masoumih@mcmaster.ca
TA Office Hours: TBA

COURSE ELEMENTS

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

COURSE DESCRIPTION

This course provides students with an understanding of fixed-income securities and their markets. In particular, the course will cover the models and methods used to value, analyze, and hedge interest-rate products and derivatives by participants in the finance industry. The course integrates theory and practice, and focuses on the implementation of these models, as well as their derivation. Methods and tools needed to understand the models and related theory will also be developed.

This course is taught primarily through lectures, readings, in-class discussions, and problem solving.

LEARNING OUTCOMES

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

- explain the primary characteristics of different types of interest rate securities
- explain the central concepts and theory behind valuing interest rate products and derivatives
- implement and calibrate spot-rate models and no-arbitrage models to price interest rate products and derivatives
- explain principles of no-arbitrage interest-rate valuation theory and apply it to solve nonstandard problems

REQUIRED COURSE MATERIALS AND READINGS

We will mainly follow ***Options, Futures, and Other Derivatives***, 11th edition, by John C. Hull. Another relevant textbook is ***Bond Markets, Analysis, and Strategies***, 10th edition, by Frank J. Fabozzi and Francesco A. Fabozzi.

We will mainly use the PPT slides of the textbook provided by Professor John Hull that can be downloaded from his [website](#). Additional supplementary PPT slides may be provided by the instructor. Please review the slides before attending the lectures. Further reading materials may be suggested by the instructor.

For your information, you can download the answers to the end of chapter questions of the textbook from the above-mentioned website hosted by Professor Hull.

EVALUATION

All work will be evaluated on an individual basis except for group assignments where group members will share the same grade. The components of the course grade will be weighted as follows. The instructor reserves the right to modify the weights to adjust for more or less material covered during the semester. Missed exams not approved by the MFin Program Office will receive a grade of zero. Late assignments will not be marked and will receive a grade of zero.

Components and Weights

Participation (individual)	10%
Assignment #1 (group)	15%
Mid-Term Exam (individual)	25%
Assignment #2 (group)	20%
Final Exam (individual)	30%
Total	100%

Grade Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme.

LETTER GRADE	PERCENT	POINTS
A+	90-100	12
A	85-89	11
A-	80-84	10
B+	75-79	9
B	70-74	8
B-	60-69	7
F	00-59	0

Participation

Participation in class is worth **10%** of your final grade. Participation will be graded based on the quality of in-class contribution. You must have a name card with your **full first and last name** clearly written and displayed in front of you for every class. Instructor will feel free to **cold-call** on anyone at any time. Hence, it is imperative that you prepare for each and every class.

Assignments

There are two group assignments. Each group consists of at most three students. Group members in each group will share the same grade.

Mid-Term and Final Exams

Mid-term exam is worth **25%** of your final grade. Final exam is worth **30%** of your final grade. Final exam is cumulative. The use of a non-programmable calculator is allowed during examinations. See McMaster calculator policy at the following URL:

www.mcmaster.ca/policy/Students-AcademicStudies/UndergraduateExaminationsPolicy.pdf

Please review the Graduate Examinations Policy (if applicable):

<http://www.mcmaster.ca/policy/Students-AcademicStudies/GradExamsPolicy.pdf>

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 Administrative Assistant.

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.

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.

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.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at:

www.mcmaster.ca/academicintegrity

Students are responsible for being aware of and demonstrating behaviour that is honest and ethical in their academic work. Such behaviour includes:

- following the expectations articulated by instructors for referencing sources of information and for group work;
- asking for clarification of expectations as necessary;
- identifying testing situations that may allow copying;
- preventing their work from being used by others (e.g., protecting access to computer files); and
- adhering to the principles of academic integrity when conducting and reporting research.

COURSES WITH AN ONLINE ELEMENT

All courses use some online elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, 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.

Students may be required to use the Respondus LockDown Browser and Respondus Monitor. The Respondus LockDown Browser is a downloadable program that allows a student to take an Avenue to Learn quiz in a secure environment. Quizzes can be set to use LockDown Browser or LockDown Browser.

For more details about McMaster's use of Respondus Lockdown Browser please go to <https://avenuehelp.mcmaster.ca/exec/respondus-lockdown-browser-and-respondus-monitor/>

The available information is dependent on the technology used. Continuation in a course that uses online 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, Teams, 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.

ATTENDANCE

Arriving late or missing class disrupts the learning experience for both you and your peers. Punctuality and attendance are crucial to maintaining a respectful, professional and productive environment for everyone, including our faculty.

Instructors may use Top Hat in their course in a variety of ways, including to capture attendance in their classes. Attendance is recorded by submitting a unique 4-digit code displayed in your physical classroom using your personal device.

MISSED ACADEMIC WORK

Missed Examinations / Tests / Class Participation

Students can apply for relief from missed term work if they have or are going to miss an evaluated portion of their course. Please contact the Program Administrator for more information.

Reasons for missing course work can include:

- Health-related or extenuating circumstances
- Work-related commitments (for part-time students only)
- Representing the University at an academic or varsity event
- Religious obligations
- Conflicts between two (or more) overlapping scheduled mid-term exams.

Requesting Relief for Missed Term Work

When students miss regularly scheduled term work which contributes 10% or less to the final grade, the activity necessary to compensate for the missed work will be determined by the course instructor. The compensatory activities assigned will vary with the nature of the course and the missed requirement. They include, but are not restricted to, an alternative assignment, a rescheduled midterm exam, or re-weighting the marks for the missed component to other mark components. For missed work which exceeds 10% of the course grade, [Petition For Relief For MFin Missed Term Work](#) and [McMaster University Student Health Certificate](#) or other supporting documentation must be submitted to the Program Administrator at mfin@mcmaster.ca within five (5) business days of missing the work or mid-term exam.

Missed Final Examinations

Students must be available for the duration of the posted exam period regardless of their personal exam schedule. This is to ensure student availability throughout the entire exam period in the event that an exam must be rescheduled due to unforeseen circumstances (university closure, power outage, storm policy, etc.). A student who misses a final examination without valid reason will receive a mark of 0 on the examination.

Students who have missed a final exam for a valid reason can apply to the Program Office to write a deferred examination by submitting an [Application for Deferring a Final Exam](#) and [McMaster University Student Health Certificate](#) or other supporting documentation. The application must be made within five days of the scheduled exam.

Deferred examination privileges, if granted, are normally satisfied during the examination period at the end of the following semester. In select cases, the deferred examination may be written at a time facilitated by the Program Office and agreed to by the course instructor.

Requests for a second deferral or rescheduling of a deferred examination will not be considered.

ACADEMIC ACCOMMODATION FOR STUDENTS WITH DISABILITIES

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for course work at the outset of term. Students must forward a copy of such SAS accommodation to the instructor normally, within the first three (3) weeks of classes by setting up an appointment with the instructor. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is:

<http://sas.mcmaster.ca>

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 the Program Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation. 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.

POTENTIAL MODIFICATION TO THE COURSE

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

GENERATIVE AI

Students are not permitted to use generative AI in this course. In alignment with [McMaster academic integrity policy](#), it “shall be an offence knowingly to ... submit academic work for assessment that was purchased or acquired from another source”. This includes work created by generative AI tools. Also state in the policy is the following, “Contract Cheating is the act of “outsourcing of student work to third parties” (Lancaster & Clarke, 2016, p. 639) with or without payment.” Using Generative AI tools is a form of contract cheating. Charges of academic dishonesty will be brought forward to the Office of Academic Integrity.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your registration and continuous participation (e.g. on A2L, in the classroom, etc.) to the various learning activities of Finance 708 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

Week	Date	Topic	Textbook Chapter	Event
1-2	Sep 10 & 17	<ul style="list-style-type: none"> ▪ Introduction to fixed-income instruments ▪ Interest rate and bond pricing basics ▪ Duration and convexity 	Ch. 4	
3-4	Sep 24 & Oct 1	<ul style="list-style-type: none"> ▪ Interest rate futures ▪ Swaps 	Ch. 6 and 7	
5	Oct 8	<ul style="list-style-type: none"> ▪ Bonds with embedded options 		
6	Oct 15	<ul style="list-style-type: none"> ▪ Credit risk (Part 1) 	Ch. 24	Assignment #1 due on Oct 17 (Thu) at 4:00 pm, DSB 303 drop box
7	Oct 22	Mid-term exam		Mid-term exam: Tue Oct 22, 12:00 – 2:15pm Location: T13 123
8	Oct 29	<ul style="list-style-type: none"> ▪ Bond portfolio management and construction 		
9	Nov 5	<ul style="list-style-type: none"> ▪ Credit risk (Part 2) 	Ch. 24	
10	Nov 12	<ul style="list-style-type: none"> ▪ Martingales and measures 	Ch. 28	
11	Nov 19	<ul style="list-style-type: none"> ▪ Interest rate derivatives: The standard market models 	Ch. 29	
12	Nov 26	<ul style="list-style-type: none"> ▪ Equilibrium models of the short rate 	Ch. 31	
13	Dec 3	<ul style="list-style-type: none"> ▪ No-arbitrage models of the short rate 	Ch. 32	Assignment #2 due on Dec 5 (Thu) at 4:00 pm, DSB 303 drop box

