

**Finance 708
Fixed-Income Securities
Fall 2019 Course Outline**

**Finance & Business Economics
DeGroot 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: DSB 505
(Tuesday & Wednesday 11:30am-2:30pm)

TA Name & Email: TBA
TA Office Hours: TBA

COURSE ELEMENTS

Credit Value: 3	Leadership: Yes	IT skills: No	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. Examples of these models are spot rate models (e.g., Hull-White) and the Heath-Jarrow-Morton (HJM) forward rate model. 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 LIBOR market 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

Required: *Options, Futures, and Other Derivatives*, 10th edition, by John C. Hull.

Further reading and case materials may be suggested by the instructor during the lectures.

EVALUATION

All work will be evaluated on an individual basis except for group assignments/reports 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 weightings 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 assignment and case report will not be marked and will receive a grade of zero.

Components and Weights

Participation (individual)	10%
Assignment (group)	15%
Mid-Term Exam (individual)	25%
Case Report (group)	15%
Final Exam (individual)	35%
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
A+	90 - 100
A	85 - 89
A-	80 - 84
B+	75 - 79
B	70 - 74
B-	60 - 69
F	00 - 59

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.

Assignment

There is a group assignment that is worth **15%** of the final grade. Each group consists of at most three students. Group members in each group will share the same grade.

Case Report

There is a group case report that is worth **15%** of the final grade. 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 **35%** of your final grade. Final exam is cumulative. The use of a non-programmable calculator is allowed during examinations.

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.

ACADEMIC DISHONESTY

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

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations

MISSED EXAMINATIONS/TESTS/CLASS PARTICIPATION

Where students miss a regularly scheduled mid-term or class participation for legitimate reasons as determined by the MFin Program Office, the weight for that test/participation will be distributed across other evaluative components of the course at the discretion of the instructor.

Documentation explaining such an absence must be provided to the MFIN Program Office within five (5) working days upon returning to school.

To document absences for health related reasons, please provide the Petition for Relief for MFIN Missed Term Work and the McMaster University Student Health Certificate which can be found on the DeGroot website at <https://mfin.degroote.mcmaster.ca/current-students/forms/>.

Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only.

University policy states that a student may submit a maximum of three (3) medical certificates per year after which the student must meet with the Program Director.

To document absences for reasons other than health related, please provide the Petition for Relief for MFIN Missed Term Work which can be found on the DeGroot website at <https://mfin.degroot.mcmaster.ca/current-students/forms/> and documentation supporting the reason for the absence.

Students unable to write a mid-term at the posted exam time due to the following reasons: religious; representing university at an academic event; conflicts between two overlapping scheduled mid-term exams; or other extenuating circumstances have the option of applying for special exam arrangements. Such requests must be made to the MFIN Program Office at least ten (10) working days before the scheduled exam along with acceptable documentation. Instructors cannot themselves allow students to unofficially write make-up exams/tests.

Adjudication of the request must be handled by the MFIN Program Office.

If a mid-term exam is missed without a valid reason, students will receive a grade of zero (0) for that component.

Missed Final Examinations

A student who misses a final examination without good reason will receive a mark of 0 on the Examination.

All applications for deferred and special examination arrangements must be made to the MFIN Program Office. Failure to meet the stated deadlines may result in the denial of these arrangements. Deferred examination privileges, if granted, must be satisfied during the examination period at the end of the following term. There will be one common sitting for all deferred exams.

Failure to write an approved deferred examination at the pre-scheduled time will result in a failure for that examination, except in the case of exceptional circumstances where documentation has been provided and approved. Upon approval, no credit will be given for the course, and the notation N.C. (no credit) will be placed on the student's transcript. Students receiving no credit for a required course must repeat the course. Optional or elective courses for which no credit is given may be repeated or replaced with another course of equal credit value.

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

Any student who is unable to write a final examination because of illness is required to submit the Application for Deferred MFIN Final Examination and a statement from a doctor certifying illness on the date of the examination. The Application for Deferred MFIN Final Examination and the McMaster University Student Health Certificate can be found on the DeGroot website at <https://mfin.degroot.mcmaster.ca/current-students/forms/>.

Students who write examinations while ill will not be given special consideration after the fact. In such cases, the request for a deferred examination privilege must be made in writing to the MFIN Program Office within five business days of the missed examination.

Special examination arrangements may be made for students unable to write at the posted exam time due to compelling reasons such as religious or representing the University at an academic event.

Students who have religious obligations which make it impossible to write examinations at the times posted are required to produce a letter from their religious leader stating that they are unable to be present owing to a religious obligation.

If a student is representing the University at an academic event and is available at an overlapping scheduled time of the test/examination, the student may write the test/examination at an approved location with an approved invigilator, as determined by the MFIN Program Office. In such cases, the request for a deferred examination privilege must be made in writing to the MFIN Program Office within ten business days of the end of the examination period.

Note: A fee of \$50 will be charged for a deferred exam written on campus and a fee of \$100 for deferred exams written elsewhere.

In cases where the student's standing is in doubt, the MFIN Program Office may require that the student with one or more deferred examination privileges refrain from re-registering until the examination(s) have been cleared.

STUDENT ACCESSIBILITY SERVICES

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca.

For further information, consult McMaster University's Policy for Academic Accommodation of Students with Disabilities:

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

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.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in 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	Sep 9-13	Introduction Interest rate review and basics	Ch. 4 and 7	
2-4	Sep 16-Oct 4	Interest rate futures Interest rate derivatives: The standard market model	Ch. 6 and 29	
5-6	Oct 7-18	Credit risk Credit derivatives	Ch. 24 and 25	Assignment due on Oct 16 (Wed) at 4:00pm in DSB 303
7	Oct 21-25	Equilibrium models of the short rate	Ch. 31	Mid-term exam: Oct 21 (Mon) Time: 2:30-5:00pm Venue: TBA
8-9	Oct 28-Nov 8	Martingales and measures	Ch. 28	
10-11	Nov 11-22	No-arbitrage models of the short rate	Ch. 32	
12-13	Nov 25-Dec 6	HJM, LMM, and multiple zero curves	Ch. 33	Case report due on Dec 9 (Mon) at 4:00pm in DSB 303