

**FINANCE 708  
Fixed-Income Analysis  
Fall 2023 Course Outline**

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

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***COURSE OBJECTIVE***

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*This course presents an advanced treatment of core concepts and theories in the field of fixed-income securities. In particular, this course focuses on using theoretical models and pricing approaches to analyze the fixed-income securities and explain the term structure of interest rates.*

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***INSTRUCTOR AND CONTACT INFORMATION***

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**Section: Tuesdays 7:00pm – 9:45pm**

Instructor: Otto Yung

[yungo1@mcmaster.ca](mailto:yungo1@mcmaster.ca)

Office: TBA

Office Hours: To be posted on course portal

Tel: To be posted on course portal

Course website: Avenue to Learn

TA: TBA

[TBA@mcmaster.ca](mailto:TBA@mcmaster.ca)

Office: TBA

Office Hours: TBA

Tel: To be posted on course portal

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***COURSE ELEMENTS***

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

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## ***COURSE DESCRIPTION***

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*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 and analyze interest rate products. The course integrates theory and practice and focuses on the implementation of various models, as well as their derivation. Methods and tools needed to understand the models and related theory will also be developed.*

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## ***LEARNING OUTCOMES***

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

- Conduct the analysis for the fixed-income securities
  - Model immunization strategy to hedge interest rate risk
  - Use models or methods to price fixed-income securities
  - Explain the term structure of interest rates by using a variety of methods
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## ***COURSE MATERIALS AND READINGS***

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### **Required Textbook:**

Options, Futures, and Other Derivatives, 11<sup>th</sup> Edition by John C. Hull, Pearson  
<http://www-2.rotman.utoronto.ca/~hull/ofod/index.html>

### **Optional:**

Bond Markets, Analysis, and Strategies by F. Fabozzi  
9<sup>th</sup> or 10<sup>th</sup> Edition, Prentice Hall

Financial Modelling by Simon Benninga, The MIT Press

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## **COURSE OVERVIEW AND ASSESSMENT**

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Grades are a measure of the performance of a student in individual courses. Each student shall be judged on the basis of how well he or she has command of the course material.

| <b>Work Type</b> | <b>Deliverable</b> | <b>Weighting</b> | <b>Due Date</b>   |
|------------------|--------------------|------------------|---|
| Group            | Assignment #1      | 20%              | Friday, October 27 <sup>th</sup> (11:59pm)  |
| Individual       | Midterm            | 20%*             | In-Class (October 31 <sup>st</sup> )  |
| Group            | Assignment #2      | 25%              | Friday, December 8 <sup>th</sup> (11:59pm) and<br>*Presentations (in-class – TBA - tentative) |
| Individual       | Final Exam         | 35%*             | During Final Exam Period  |

\* The total weight of the midterm and the final exam combined will be 55% (note: the allocation will be one of the following: (i) 20% midterm and 35% final exam or (ii) 15% midterm and 40% final exam). The allocation will be based on the higher grade of the two allocations by each student. (Note: If the midterm is missed due to legitimate reasons (e.g., medical) the weight will be shifted to the final exam)

There will be a 20% deduction per day for late assignments.

### **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:

| <b>LETTER GRADE</b> | <b>PERCENT</b> | <b>POINTS</b> |
|---------------------|----------------|---------------|
| 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             |

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## ***COMMUNICATION AND FEEDBACK***

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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.

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## ***REQUESTING RELIEF FOR MISSED ACADEMIC WORK***

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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.degrootemcmaster.ca/current-students/missed-term-work/>

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## ***ACADEMIC INTEGRITY***

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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, located at:

[www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity)

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.

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## ***AUTHENTICITY/PLAGIARISM DETECTION***

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**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, etc.) 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, etc.). For more details about McMaster's use of Turnitin.com please go to [www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity).

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## ***COURSES WITH AN ON-LINE ELEMENT***

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**Some courses may** use on-line 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.

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.

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## **CONDUCT EXPECTATIONS**

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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.

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## ***MISSED ACADEMIC WORK***

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### ***Missed Examinations / Tests / Class Participation***

Please do not use the online McMaster Student Absence Form (MSAF) as this is for Undergraduate students only. The MFIN program will not accept an MSAF.

Students can apply for relief of 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.

#### Requesting Relief for Missed Term Work

If a portion of your term work is missed for legitimate reasons, as determined by the Program Administrator, the weight for that missed term work will be redistributed across the other assignments and exams of the course. For missed work, forms and supporting documentation must be submitted to the Program Administrator within five (5) business days of missing the work or mid-term exam.

#### Requesting Relief for Term Work in Advance

If evaluated term work is missed, students can request for relief/special arrangement in advance. Supporting documentation must be submitted to the Program Administrator at least ten (10) working days before the mid-term exam, test, assignment, etc.

The program administrator will provide the required forms to the student. Please complete the Petition for Missed Term Work form in addition to:

- For medical reasons the McMaster University Student Health Certificate and for extenuating circumstances, appropriate documentation is required.
- Due to a business commitment (for part-time students only), have your immediate supervisor provide you with a letter on company letterhead stating that you are unable to be present due to a specific job commitment.
- For varsity reasons, have a designated University official provide a letter on university letterhead; or
- For religious reasons, have your religious leader provide a letter stating that you are unable to be present due to a religious obligation. In all cases, the request must be handled by The Program Administrator. The appropriate distribution of re-weighting term work will be determined by the instructor. Submitting a request does not guarantee approval or special consideration.

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## ***ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES***

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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>

Students who are leveraging accommodation for tests and exams are supported by the SEAO. These exams are written at the Ron Joyce Centre and do not take place in the Tim Nolan Testing Centre. Correspondence for accommodations is managed via the [DSBSAS@mcmaster.ca](mailto:DSBSAS@mcmaster.ca) email address. Students must communicate their intent to leverage accommodations on a test or exam a minimum of 10 business days prior to the assessment.

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

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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.



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### ***COPYRIGHT AND RECORDING***

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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.

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### ***POTENTIAL MODIFICATION TO THE COURSE***

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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.

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## **RESEARCH USING HUMAN SUBJECTS**

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Research involving human participants is premised on a fundamental moral commitment to advancing human welfare, knowledge, and understanding. As a research intensive institution, McMaster University shares this commitment in its promotion of responsible research. The fundamental imperative of research involving human participation is respect for human dignity and well-being. To this end, the University endorses the ethical principles cited in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans:

<http://www.pre.ethics.gc.ca>

McMaster University has mandated its Research Ethics Boards to ensure that all research investigations involving human participants are in compliance with the Tri-Council Policy Statement. The University is committed, through its Research Ethics Boards, to assisting the research community in identifying and addressing ethical issues inherent in research, recognizing that all members of the University share a commitment to maintaining the highest possible standards in research involving humans.

If you are conducting original research, it is vital that you behave in an ethical manner. For example, everyone you speak to must be made aware of your reasons for eliciting their responses and consent to providing information. Furthermore, you must ensure everyone understands that participation is entirely voluntary. Please refer to the following website for more information about McMaster University's research ethics guidelines:

<http://reo.mcmaster.ca/>

Organizations that you are working with are likely to prefer that some information be treated as confidential. Ensure that you clarify the status of all information that you receive from your client. You **MUST** respect this request and cannot present this information in class or communicate it in any form, nor can you discuss it outside your group. Furthermore, you must continue to respect this confidentiality even after the course is over.

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## **ACKNOWLEDGEMENT OF COURSE POLICIES**

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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.

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**COURSE SCHEDULE**

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| <b>WEEK</b>   | <b>DAY<br/>(TUESDAYS)</b> | <b>TOPICS</b>   |
|---|---------------------------|---|
| 1   | Sept. 12                  | Review - Bond Basics (Chapter 4)  |
| 2   | Sept. 19                  | Managing Interest Rate Risk (Lecture Notes)   |
| 3   | Sept. 26                  | Immunization Strategy (Lecture Notes)   |
| 4   | Oct. 3                    | Interest-Rate Models and Approaches for Analyzing Fixed-Income Securities (e.g., with embedded options) (Lecture Notes) |
| No Class (Week of October 9 <sup>th</sup> to 13 <sup>th</sup> ) |                           |   |
| 5   | Oct. 17                   | Interest Rate Futures (Chapter 6) and Forward Contracts (Lecture Notes)   |
| 6   | Oct. 24                   | Swaps (Chapter 7)   |
| 7   | Oct. 31                   | Midterm   |
| 8   | Nov. 7                    | Credit Risk (Chapter 24 and Lecture Notes)  |
| 9   | Nov. 14                   | Credit Derivatives (Chapter 25 and Lecture Notes)   |
| 10  | Nov. 21                   | Credit Risk Analysis and Credit Risk Modelling (Lecture Notes)  |
| 11  | Nov. 28                   | Wiener Process (Chapter 14)<br>Martingales and Measures (Chapter 28)  |
| 12  | Dec. 5                    | Various topic(s) as time permits: (Chapters 29 to 33)<br>Interest Rate Derivatives to Modelling Forward Rates           |