

**MBA F723
Fixed Income Analysis
Winter 2023 Course Outline**

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

COURSE OBJECTIVE

The objective of this course is to provide students with the appreciation of the landscape of fixed income instruments and the ability to comfortably discuss details associated with how many of these fixed income instruments are priced, used and traded in practice. Using this as a backdrop, the students will learn how a zero coupon (or discount) curve is constructed in practice and how this construct allows one to price interest rate swaps under both the old paradigm (i.e. LIBOR) and the new paradigm (i.e. SOFR). Time permitting, students will also be exposed to options on bonds and how option-adjusted spreads can play a useful role in quantifying the embedded optionalities in a bond.

INSTRUCTOR AND CONTACT INFORMATION

Lecture Dates/Times:	Mondays, 1430 – 1720 hours January 9/16¹/23¹/30 February 6/13/27 March 6/13/20/27 April 3/10
Instructor:	Dr Kannoo Ravindran (Ravi)
Office Hours:	Available By Appointment
Tel:	647-296-6683
Email:	kravindran@annuitysystems.com

¹ Indicates an online session. There will be 2 such sessions on 16th and 23rd of January 2023.

COURSE ELEMENTS

Credit Value: 3	Innovation: Yes	Numeracy: Yes	Midterm Exam: Yes
Participation: Yes	Group Work: Yes	Written Skills: Yes	Final Exam: Yes
IT Skills: Yes	Experiential: Yes	Oral Skills: Yes	Presentations: Yes

COURSE DESCRIPTION

The global fixed income market (which includes bonds, mortgage and asset backed securities), is valued approximately at USD 130 trillion making it 3 times as large as the size of the global equity markets². Starting with an overview of the fixed income market landscape (including aspects of the securitization market) and motivation underlying the development of this market, the course will discuss the advanced analytics required to deeply understand the practical nuances associated with pricing and using some of these fixed income instruments. Building on this knowledge, the course will go on to discuss how interest rate and currency swaps are priced and used in practice. Time permitting (and depending on the background of the students), other topics that are expected to be covered in the course include bond options, interest rate swaptions, caps/floors, option adjusted spreads.

LEARNING OUTCOMES

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

- Understand the fixed income instruments landscape (including securitization) and comfortably communicate on these topics
- Price select fixed income instruments
- Replicate numbers produced by certain Excel Financial Functions (e.g. “=Price()”) for varying day count conventions and settlement periods
- Build zero coupon curves
- Price interest rate and currency swaps
- Use bonds and swaps to manage interest rate risks
- Structure yield curve trades to manage risks and/or speculate

² See comment by [Barclays](#).

- Price and use (from a risk-management and yield-enhancement perspective) options on bonds and swaps

COURSE MATERIALS AND READINGS

Required:

[Bond Markets, Analysis and Strategies](#) by F. Fabozzi and Francesco Fabozzi, 10th ed., Prentice Hall

Optional:

CFA Level 1, Volume 5: Fixed Income, Derivatives, Alternative Investments, and Portfolio Management.

CFA Level 2, Volume 4: Equity Valuation and Fixed Income.

CFA Level 3, Volume 3: Fixed Income and Equity Portfolio Management.

Hull, J. C., Options, Futures, and Other Derivatives, 10th Edition, Prentice Hall

Ravindran, Kannoo, The Mathematics of Financial Models, Wiley Finance.

EVALUATION: COMPONENTS & WEIGHTS

Missing assessments/projects/exams etc. tests/exams without any form of pre-approval from the instructor or lack of appropriate documentation (see [Missed Academic Work](#)) will result in a grade of zero. The student's final grade will be calculated as follows:

Components and Weights

Assignments	Individual	10%
Project	Group	25%
Mid-term	Individual	20%

Final Exam	Individual	40%
Participation	In-class Contribution (individual)	5%
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

COURSE DELIVERABLES

Assignments (10%):

- There will be anywhere from 7 – 10 assignments given out during the semester.
- Each assignment will contribute equally to the total assignment component of the grade.

Project (25%):

- Groupings will be done on the first day of class (9 Jan 2023).
- Group projects will be discussed and assigned on the first day of class.
- More details on this would be given out when we meet on 9 Jan 2023.

Participation (5%)

Only the in-class (in-person) sessions will contribute to this component.

Every in-class session will contribute equally to this participation component.

You must have a name card with your **full first and last name** clearly written and displayed in front of you for every class.

Since student participation is an important component of this course, official McMaster student ID photographs will be used to ensure that each student is assessed accurately. I will use the photograph to ensure the accuracy of participation marks, group work, and for identifying students for grading purposes

Mid-Term Exam (20%)

- This exam will be given on 6 Mar 2023 during class.
- The exam will cover all the materials discussed in class (inclusive of those covered on 27 Feb 2023)
- Details of this would be given out when we meet on 9 Jan 2023

Final Exam (40%)

- Similar to mid-term in terms of set up
- Will be scheduled by the University.
- This exam will cover ALL the materials discussed in the class (including group presentations)

COMMUNICATION AND FEEDBACK

Students who wish to correspond with me should do so directly at kravindran@annuitysystems.com using 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.

I can also be reached at 647-296-6683 in the event of an emergency.

MISSED ACADEMIC WORK

Where students miss a regularly scheduled assessments (e.g. assignments, mid-term, class participation, group project or final-exam) for legitimate reasons as determined by the Student Experience – Academic (MBA) office, the weight for that assessment 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 Student Experience – Academic (MBA) office within five (5) working days upon returning to school. To document absences for health-related reasons, please provide to Student Experience – Academic (MBA)

office the [Petition for Relief for MBA Missed Term Work](#) and the [McMaster University Student Health Certificate](#).

Please refer to [Missed Term Work](#) for more details.

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behavior 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 behavior 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

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.

COURSES WITH AN ON-LINE ELEMENT

This course 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.

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 sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

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.

POTENTIAL MODIFICATION TO THE COURSE

The instructor reserves the right to modify elements of the course during the term depending on the background of the students and how well students digest and respond to the new materials taught in class. 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. It is responsibility of the students to check their McMaster email and course website weekly during the term for updates/changes.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in MBA F723 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

TOPIC	DETAILS
1	Interest Rates Fixed Income Instruments: Bonds, T-bills, structured notes, asset-backed securities etc. Pricing Vanilla Bonds, Amortizing Bonds, Mortgages etc. Using Fixed Income Instruments for yield enhancements and risk-management
2	Spot Rates, Forward Rates, Zero Coupon Rates Building and using Zero Coupon Curve Pricing simple interest rate and currency swaps Using Swaps for yield enhancements and risk-management
3	Pricing Bond options, swaptions, caps and floors Using Bond options, swaptions, caps and floors Valuing callable/puttable/convertible bonds Using callable/puttable/convertible bonds Option Adjusted Spreads