

School of Administrative Studies
Faculty of Liberal Arts and Professional Studies

Fixed Income Securities and Risk Management

Course Number: **AP/ADMS 4504 Section A**
Term: **Fall 2024**

Course Outline

Instructor: Professor Xiaofei Li

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Class Hours: Mondays, 11:30 am – 2:30 pm

Office Hours: Tuesdays, 3 pm – 5 pm, in my office AK 235A

Course Description

This course introduces you to fixed income securities and markets. Topics covered include debt securities, risks of investing in bonds, the pricing of fixed income securities, the measurement of interest rate risk, the term structure and volatility of interest rates, models of the term structure, mortgage-backed and asset-backed securities and their valuation, credit analysis, and interest rate derivatives etc. This course is both rich in content and fast in pace. So, significant out of class work is required for each of you.

Prerequisite

AP/ADMS 3531 (Personal Investment Management) is the prerequisite. [You are also highly recommended to take AP/ADMS 4503 \(Derivative Securities\) and AP/ADMS 4509 \(Financial Risk Management\) at your convenient time.](#)

Student Evaluation

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|---------------------|------------------------------|
| Assignments 1 and 2 | 7.5% each for a total of 15% |
| Midterm Exam | 35% |
| Final Exam | 50% |

Required Textbook

There is *no* required textbook. You rely primarily on the PowerPoint slides and your class notes.

Supplementary Readings

1. [*Bond Markets, Analysis, and Strategies*](#), various editions, Frank J. Fabozzi, Pearson Education, Inc.
2. [*Bond Math: The Theory behind the Formulas*](#), second edition, Donald J. Smith, John Wiley & Sons, Inc., 2014.
3. [*Fixed Income Markets and Their Derivatives*](#), third edition, Suresh Sundaresan, Elsevier Inc., 2009.
4. [*Fixed Income Analysis*](#), fourth or fifth edition, CFA Institute, John Wiley & Sons, Inc., 2019 (fourth edition) and 2022 (fifth edition).

Please note: A number of articles are to be posted on the course website throughout the semester. You are required to read them since they will be tested.

Method of Instruction

Your active participation is encouraged. You are required to think, to analyze, to evaluate, and to apply problem-solving techniques.

Assignments

There are two assignments. Assignments are to be posted on the course website *at least* three weeks in advance of the due dates. Assignments involve problem-solving and short answers and must be submitted *individually* in *hard copies*.

Assignments are due at the start of the class on the assigned dates. Late assignments are **NOT** accepted. If your assignment is late, you receive a mark of **zero (0)**.

Midterm and Final Exams

Midterm and final exams are both **Closed Book**. There is *no* make-up midterm exam. The midterm exam covers the topics in the **first five weeks**. The final exam is **cumulative** and might test every topic in the course. The midterm and final exams have **both quantitative and qualitative** questions.

If you miss the midterm exam for a legitimate reason, your final exam performance relative to other students in the class is to be used to estimate your midterm exam mark. The estimation and any further adjustment are entirely at the discretion of the Course Director/Area Coordinator and are *not* subject to any appeal. All students who need a passing grade for the course must write the final exam.

Note: It is the policy of the School of Administrative Studies Finance Area that **instructors will not sign a DSA form if a student misses both the midterm and final**

exams. Students in this situation will need to petition for a remedy appropriate to their circumstances.

Formula Sheets

The formula sheets for the midterm and final exams are to be posted on the course website *at least* one week before the exams. Please do *not* bring copies of the formula sheets to the exams.

Financial Calculator

A financial calculator is required. If you will pursue the CFA designation in the future, note that *only* two types of calculator are currently allowed at the CFA exams: the Texas Instruments BAII Plus (BAII Plus) and Hewlett-Packard 12C (HP-12C).

Academic Honesty and Integrity

In this course, we strive to maintain academic integrity to the highest extent possible. All instances of academic dishonesty in this course will be reported to the appropriate university authorities, and can be punishable according to the Senate Policy on Academic Honesty:

<https://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>

Tentative Course Schedule

The topic order is as stated below. Depending on time constraint, some topics may be subject to minor changes.

| Week | Date | Topic |
|------|----------------------------|---|
| 1 | September 9 th | Features of Debt Securities, and Risks in Bond Investments |
| 2 | September 16 th | Overview of Bond Sectors, and Understanding Yield Spreads |
| 3 | September 23 rd | Introduction to the Fixed Income Valuation, and Duration and Convexity Assignment 1 is posted |
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| 4 | September 30 th | | Yield Measures, Spot Rates, and Forward Rates |
| 5 | October 7 th | | Term Structure and Volatility of Interest Rates |
| | Midterm Exam is on Sunday, October 20th, 12 pm (i.e., noon) – 2 pm | | Midterm Exam covers Weeks 1 - 5 Assignment 1 is due at the start of the midterm exam |
| 6 | October 21 st | | Binomial Model and Convertible Bonds |
| 7 | October 28 th | | Mortgage-Backed Securities |
| 8 | November 4 th | | Asset-Backed Securities |
| 9 | November 11 th | | Valuation of Mortgage- and Asset-Backed Securities: Monte Carlo Simulation Model Assignment 2 is posted |
| 10 | November 18 th | | General Principles of Credit Analysis |
| 11 | November 25 th | | Credit Analysis Models |
| 12 | December 2 nd | | Models of the Term Structure of Interest Rates, and Interest Rate Derivatives Assignment 2 is due at the start of the last class |