MGT 6769 Syllabus

Fixed Income Securities, 3 Credits

M, 3.30—4.45 pm, Room 300

W, Asynchronous online

Instructor Information

Instructor	Email	Office Hours
Satyajit (Jeet) Karnik	skarnik33@gatech.edu	On demand in person, zoom or phone

Description

Fixed income securities are debt instruments where an investor essentially loans money to an entity (like a government or corporation) in exchange for a predictable stream of interest payments and the return of principal at maturity. Common examples include government bonds, corporate bonds, and municipal bonds. Fixed income derivatives, such as interest rate swaps, bond futures, and credit default swaps (CDS), are financial contracts whose value is derived from these underlying securities, interest rates, or credit events. These derivatives allow market participants to manage risks like interest rate fluctuations and potential defaults, speculate on market movements, or gain exposure without directly owning the underlying bonds. The course will introduce you to fixed income instruments and their derivative markets and pricing methodologies.

Course Goals and Learning Outcomes

The course explores the following topics in considerable detail:

- Time value of money revision
- Bond markets, Yield Curves
- Duration, Duration hedging
- Interest Rate Models
- Interest rate derivatives

- Bond portfolio management
- Default Models and Credit portfolio management

Course Modality Information

The course will be held in hybrid mode. Monday class is in person and Wednesday is asynchronous online. Some weeks might be fully online in synchronous mode, especially test review etc. We will record each class so you may revisit the lecture again.

Course Requirements & Grading

There are 3 components to your grades:

8 short quizzes (5% each): Short quizzes are designed to test simple concepts and computations. Their main purpose is to keep you on schedule.

3 Tests (15% each): Tests will involve deeper questions and computations.

Participation (15%): Answering online questions on canvas during the lectures.

To maintain fairness to all we will not allow extra credit opportunities in this course. All work is required to be completed and submitted by the due date and time. Late submissions will not be accepted.

Course Materials

Course Text

There is no official text for this course as the topics have a wide diversity. Our focus will be more on applying the theory to specific examples. I will put relevant readings and references as we go along. The following texts are recommended:

"Fixed Income Securities" by Pietro Veronese, Wiley

Additional Materials/Resources/Software to be used

- Access to high speed internet.
- Python.
- Matlab downloaded from GT website. Follow the instructions at matlab.gatech.edu.

Course Schedule

The syllabus is designed to adapt to a fully online mode easily and quickly if needed during the semester. The syllabus may change as we progress.

We will try to adhere to the following schedule. The schedule and modality is subject to change if needed.

Week	Topic	Deliverable
1	Bonds basics, yield curves, market discussion	
2	YTM, Coupon effect, law of one price	Quiz 1
3	Duration and convexity, Duration hedging	Quiz 2
4	Bond Portfolio for immunization, cash flow matching and wealth maximization	Quiz 3
5	Test 1	Test 1
6	Interest rate futures and applications	
7	Options on bonds, embedded options	Quiz 4
8	Interest Rate models, Ho-Lee, Vasicek, HJM	Quiz 5
9	Interest rate derivatives	
10	Test 2	Test 2
11	Credit portfolio modeling	

12	Credit default swaps and Swaptions	Quiz 6
13	Markov Chain Models	Quiz 7
14	Structured Products and applications	Quiz 8
	Test 3	Test 3

Academic Integrity

Honesty and transparency are important features of good scholarship. On the flip side, plagiarism and cheating are serious academic offenses with serious consequences. If any student is discovered engaging in either behavior in this course, they will earn a failing grade on the assignment in question, and further disciplinary action may be taken.

Additionally, any student suspected of cheating or plagiarizing on an assignment will be reported to the Office of Student Integrity, which will investigate the incident and identify the appropriate penalty for violations.

My aim is to foster an environment where you can learn and grow, while ensuring that the work we all do is honest and fair.

Here at Georgia Tech the aim is to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or http://disabilityservices.gatech.edu/, as soon as possible, to make an

appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible to set up a time to discuss your learning needs.

Religious Holiday

A student who wishes to observe a religious holiday/event should email the instructor within the first two weeks of the semester regarding the holiday/absence for planning purposes. If the absence falls on an examination date, the student will be allowed to complete make-up work.

Student-Faculty Expectations Agreement

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See this catalog page for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Office Hours:

To meet students' requirements, needs, and comfort levels, meetings and office hours will be offered in-person, virtually, or outdoors.

Recordings of Class Sessions and Required Permissions:

Classes may not be recorded by students without the express consent of the instructor unless it is pursuant to an accommodation granted by the Office of Disability services. Class recordings, lectures, presentations, and other materials posted on Canvas are for the sole purpose of educating the students currently enrolled in the course.

Students may not record or share the materials or recordings, including screen capturing or automated bots, unless the instructor gives permission. Digitally proctored exams may require students to engage the video camera, but those

recordings will not be shared with or disclosed to others without consent unless legally permitted.

- For classes where participation is voluntary, students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded.
- For classes requiring class participation, if students are identifiable by their names, facial images, voices, and/ or comments, written consent must be obtained before sharing the recording with persons outside of currently enrolled students in the class.