MATH 347: Mathematics of Finance II
Spring 2025 Course Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Mathematical Sciences takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

Please be sure you read and fully understand our DMS Online Exam Policy.

COURSE INFORMATION

Course Description: This course introduces mathematical models of loans, bonds, general cash flows, portfolios, and asset liability management. Topics include yields, bonds, amortization, sinking funds, yield curves, rates of return, measures of duration and convexity, cash flow matching and immunization, and how to perform related calculations.

Number of Credits: 3

Prerequisites: Math 346 and Math 244 or Math 333 all with a grade of C or better.

Course-Section and Instructors:

Course-Section	Instructor
Math 347-002	Professor T. Bui

Office Hours for All Math Instructors: Spring 2025 Office Hours and Emails

Required Textbook:

Title	*Theory of Interest*
Author	Kellison
Edition	3rd
Publisher	McGraw-Hill
ISBN #	978-0073382449

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 7, 2025**. It will be strictly enforced.

POLICIES

DMS Course Policies: All DMS students must familiarize themselves with, and adhere to, the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. DMS takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Homework	10%
Quizzes	20%
Midterm Exam I	20%
Midterm Exam II	20%
Final Exam	30%

Your final letter grade will be based on the following tentative curve.

A	90 - 100	C	68 - 74
B+	85 - 89	D	55 - 67
B	80 - 84	F	0 - 54
C+	75 - 79		

Attendance Policy: Attendance at and participation in all lectures is expected. Tardiness or leaving class early is disruptive to the classroom environment and should be avoided. If you know in advance that you will be absent from class for a legitimate reason, please tell me prior to your absence so that appropriate arrangements (if any) can be made. Please make sure you read and fully understand the Math Department's Attendance Policy. This policy will be strictly enforced. Attendance is recorded but does not count toward your final grade. Attendance and participation are used for consideration in case your grades are on the borderline.

Religious Observance: NJIT is committed to supporting students observing religious holidays. Students must notify their instructors in writing of any conflicts between course requirements and religious observances, ideally by the end of the second week of classes and no later than two weeks before the anticipated absence.

Homework: Homework will be assigned every week and due at 11:59 pm on Sunday. There will be around 10-12 assignments during the semester. Help from tutors, classmates, etc is encouraged but you are responsible for mastering the material. You should turn in the homework on time to keep up with the course progress. The lowest score on homework will be dropped from the grade.

Quizzes: From time to time, quizzes may be given. Make-up quizzes are NOT given. The lowest quiz score will be dropped from your grade.

There will be around 3 group quizzes—two with the assigned groups and one by your choice. You will have 10 minutes to work on your own and 15 minutes to discuss and submit the group work. These are open-book quizzes. There will be around 3 close-book individual quizzes throughout the semester. Each quiz has 2-3 questions. One two-sided formula sheet with only formulas is allowed.

Exams: There will be two midterm exams held in class during the semester and one comprehensive final exam. The final exam will be held during the following week:

Exam I	Feb 20, 2025
Exam II	April 1, 2025
Final Exam Period	May 10 - May 16, 2025

The final exam will test your knowledge of all the course material taught in the entire course. Make sure you read and fully understand the Math Department's Examination Policy. This policy will be strictly enforced.

Makeup Exam Policy: There will be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event an exam is not taken under rare circumstances where the student has a legitimate reason for missing the exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the Instructor that the exam will be missed.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Spring 2025 Hours)

Further Assistance: For further questions, students should contact their instructor. All instructors have regular office hours during the week. These office hours are listed on the Math Department's webpage for Instructor Office Hours and Emails.

AI usage: The usage of artificial intelligence (AI) is permitted in this course and no citation is necessary. If you have any questions or concerns about AI technology use in this class, please contact your instructor before submitting any assignments.

Accommodation of Disabilities: The Office of Accessibility Resources and Services (OARS) offers long term and temporary accommodations for undergraduate, graduate, and visiting students at NJIT.

If you need accommodations due to a disability, please contact the Office of Accessibility Resources and Services at oars@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and Services office authorizing your accommodations will be required.

For further information regarding self-identification, the submission of medical documentation, and additional support services provided please visit the Office of Accessibility Resources and Services (OARS) website at:

https://www.njit.edu/accessibility/

Important Dates (See: Spring 2025 Academic Calendar, Registrar)

Date	Day	Event

January 21, 2025	Tuesday	First Day of Classes
January 27, 2025	Monday	Last Day to Add/Drop Classes
March 16, 2025	Sunday	Spring Recess Begins
March 22, 2025	Saturday	Spring Recess Ends
April 3, 2025	Thursday	Wellness day
April 7, 2025	Monday	Last Day to Withdraw
April 18, 2025	Friday	Good Friday - No Classes
April 20, 2025	Sunday	Easter Sunday - No Classes Scheduled
May 6, 2025	Tuesday	Thursday Classes Meet
May 7, 2025	Wednesday	Friday Classes Meet
May 7, 2025	Wednesday	Last Day of Classes
May 8, 2025	Thursday	Reading Day 1
May 9, 2025	Friday	Reading Day 2
May 10 - May 16, 2025	Friday to Thursday	Final Exam Period

Course Outline

Lecture	Chapter	Topic
1 & 2	Chapter 1- 5	*Intro & Review*
3	Chapter 6	*Bonds and other securities*
4	Chapter 6	*Bonds and other securities*
5	Chapter 6	*Bonds and other securities - Quiz 1*
6	Chapter 6	*Bonds and other securities*
7	Chapter 6	*Bonds and other securities*
8 & 9	*Review for Exam I and Group Quiz 1*	

10	Exam I	
11	Chapter 7	*Yield Rates*
12	Chapter 7	*Yield Rates*
13	Chapter 7	*Yield Rates*
14	Chapter 9 (Sec 9.4)	*Recognition of Inflation*
15	Chapter 10	*The Term structure of interest rates - Quiz 2*
16	Chapter 10	*The Term structure of interest rates*
17	Chapter 10	*The Term structure of interest rates*
18 & 19	*Review for Exam II and Group Quiz 2*	
20	*Exam II*	
21	Chapter 11	*Duration, convexity & immunization*
22	Chapter 11	*Duration, convexity & immunization*
23	Chapter 11	*Duration, convexity & immunization*
24	Chapter 11	*Duration, convexity & immunization*
25	Chapter 11	*Duration, convexity & immunization - Quiz 3*
26, 27 & 28	*Review for Final Exam and Group Quiz 3*	