MATH 347: Mathematics of Finance II
Spring 2023 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.

Bloomberg Certification: Part of the course work will require completing the Bloomberg Certification. Bloomberg Institute and BMC teaches the foundations of the major asset classes using data, news and analytics from the Bloomberg terminal. It consists of 4 modules: Economic Indicators, Currencies, Fixed Income and Equities. Through BMC, you will also become familiar with 70 of the most frequently used Bloomberg Terminal functions which will provide you with a fantastic competitive edge in interviews with prospective financial employers. You must complete all four modules by April13, 2023 to receive course credit. Once you complete the course you can download a resume-enhancing Bloomberg certificate of completion.

The certification is expected to take 8 hours and you will have 13 weeks to complete it. Do not wait until the night before to start the certification. Please see the following for instructions.

FAQs - Bloomberg - Research Guides at New Jersey Institute of Technology (njit.edu)Links to an external site.

The certification is free if done at a Bloomberg Terminal at the NJIT lab. (Please bring headphones.) Alternatively, one can purchase the training and in that case it can be taken anywhere.

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 M. Ryduchowski

Office Hours for All Math Instructors:

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 3, 2023**. 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 and Quizzes	15.0%
Bloomberg Certification	10.0%
Midterm Exam I	22.5%
Midterm Exam II	22.5%
Final Exam	30.0%

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

A	90 - 100	C	65 - 74
B+	85 - 89	D	55 - 64
B	80 - 84	F	0 - 54
C+	75 - 79		

Attendance Policy: Attendance at all classes will be recorded and is **mandatory**. Please make sure you read and fully understand the Math Department's Attendance Policy. This policy will be strictly enforced.

Homework: Integrity – Your work is expected to be your own. Help from tutors, classmates etc is encouraged but you are responsible for mastering the material. Homework will be assigned at all classes.

Quiz Policy: There will be announced quizzes periodically. There are no makeup quizzes.

Technological Requirements: If the course delivery mode changes to converged learning or synchronous online, students will need access to a computer with a webcam. Exams will be proctored using ProctorU. Quizzes will be proctored using Respondus LockDown Browser+Monitor. Students must follow all instructions related to environment checks and camera positioning.

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:

Midterm Exam I	February 23, 2023
Midterm Exam II	March 30, 2023
Final Exam Period	May 5 - May 11, 2023

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 Math Department Office/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 2023 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.

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 are in need of accommodations due to a disability please contact Scott Janz, Associate Director of Disability Support Services at 973-596-5417 or via email at scott.p.janz@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 2023 Academic Calendar, Registrar)

Date	Day	Event
January 17, 2023	Tuesday	First Day of Classes
January 23, 2023	Monday	Last Day to Add/Drop Classes
March 13, 2023	Monday	Spring Recess Begins
March 18, 2023	Saturday	Spring Recess Ends
April 3, 2023	Monday	Last Day to Withdraw
April 7, 2023	Friday	Good Friday - No Classes
May 2, 2023	Tuesday	Friday Classes Meet
May 2, 2023	Tuesday	Last Day of Classes
May 3 - May 4, 2023	Wednesday and Thursday	Reading Days
May 5 - May 11, 2023	Friday to Thursday	Final Exam Period

Course Outline

Lecture	Chapter	Topic
1	Chapter 1 -4	*Intro & Review*
2	Chapter 5	*Amortization schedules and sinking funds*
3	Chapter 5	*Amortization schedules and sinking funds*
4	Chapter 6	*Bonds and other securities*
5	Chapter 6	*Bonds and other securities*
6	Chapter 6	*Bonds and other securities*
7	Chapter 6	*Bonds and other securities*
8	Chapter 7	*Yield Rates*
9	Chapter 7	*Yield Rates*
10	*Review for Midterm Exam I*	
11	*Review for Midterm Exam I*	
12	Midterm Exam I	
13	Chapter 9 (Sec 9.4)	*Recognition of Inflation*
14	Chapter 9 (Sec 9.4)	*Recognition of Inflation*
15	Chapter 10	*The term structure of interest rates*
16	Chapter 10	*The term structure of interest rates*

17	Chapter 10	*The Term structure of interest rates*
18 & 19	*Review for Midterm Exam II*	
20	*Midterm 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*
26	Chapter 11	*Duration, convexity & immunization*
27 & 28	*Review for Final Exam*	