

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 432H: Honors - Mathematics of Financial Derivatives I (Capstone I)

Fall 2018 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.

COURSE INFORMATION

Course Description: Mathematical analysis of models encountered in the area of financial derivatives. Topics include modeling and analysis of futures markets, determination of future prices, hedging strategies, swaps, option markets, stock options and their trading strategies.

Number of Credits: 3

Prerequisites: **MATH 222** with a grade of C or better and **MATH 346** with a grade of C or better.

Course-Section and Instructors

Course-Section	Instructor
Math 432-H01	Professor K. Rappaport

Office Hours for All Math Instructors: [Fall 2018 Office Hours and Emails](#)

Required Textbook:

Title	<i>Derivatives Markets</i>
Author	McDonald
Edition	3rd
Publisher	Addison Wesley
ISBN #	978-0321543080

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 12, 2018**. 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%
Project	15%
Midterm Exams	40%
Final Exam	30%

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

A	90 - 100	C	65 - 75
B+	86 - 89	D	55 - 64
B	80 - 85	F	0 - 54
C+	76 - 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. Homework will be collected and periodic quizzes will be given. Late homework will not receive full credit. There will be no makeup tests, quizzes, or homework.

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	Lecture 9
Midterm Exam II	Lecture 19
Final Exam Period	December 15 - 21, 2018

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: **Fall 2018 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**.

All students must familiarize themselves with and adhere to the Department of Mathematical Sciences Course

Policies, in addition to official university-wide policies. The Department of Mathematical Sciences takes these policies very seriously and enforces them strictly.

Accommodation of Disabilities: Disability Support Services (DSS) 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 Chantonette Lyles, Associate Director of Disability Support Services at [973-596-5417](tel:973-596-5417) or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Disability Support 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 Disability Support Services (DSS) website at:

- <http://www5.njit.edu/studentssuccess/disability-support-services/>

Important Dates (See: [Fall 2018 Academic Calendar](#), [Registrar](#))

Date	Day	Event
September 4, 2018	T	First Day of Classes
September 10, 2018	M	Last Day to Add/Drop Classes
November 12, 2018	M	Last Day to Withdraw
November 20, 2018	T	Thursday Classes Meet
November 21, 2018	W	Friday Classes Meet
November 22 - 25, 2018	R - Su	Thanksgiving Recess
December 12, 2018	W	Last Day of Classes
December 13 & 14, 2018	R & F	Reading Days
December 15 - 21, 2018	Sa - F	Final Exam Period

Course Outline

Lecture	Section	Topic	Assignment
1	Chapter 1	Introduction	1 - 8
2	Chapter 2	Forwards & Options	1, 4a - c, 5b, b, 6 - 8
3	Chapter 2	Forwards & Options	
4	Chapter 2	Forwards & Options	13, 14, 16
5	Chapter 2	Forwards & Options	
6	Chapter 2	Forwards & Options	
7	Chapter 3	Collars & Other Strategies	1- 5
8	Chapter 9	Parity	1, 2, 3b
9		EXAM	
10	Chapter 3	Collars & Other Strategies	6 - 8
11	Chapter 3	Collars & Other Strategies	9.1
12	Chapter 3	Collars & Other Strategies	11, 12

13	Chapter 3	Collars & Other Strategies	13 - 15, 18, 20
14	Chapter 4	Intro to Risk Management	1 - 3
15	Chapter 4	Intro to Risk Management	4 - 6
16	Chapter 4	Intro to Risk Management	7 - 9
17	Chapter 4	Intro to Risk Management	10 - 12
18	Chapter 4	Intro to Risk Management	15 - 17
19		EXAM	
20	Chapter 5	Forwards & Futures	1 - 3
21	Chapter 5	Forwards & Futures	4 - 6
22	Chapter 5	Forwards & Futures	7, 8, 10
23	Chapter 5	Forwards & Futures	11, 12, 13
24	Chapter 5	Forwards & Futures	14, 16
25	Chapter 8	Swaps	2 - 5
26	Chapter 8	Swaps	8 - 10
27	Chapter 8	Swaps	13, 14
28	Chapter 8	Swaps	

*Updated by Professor K. Rappaport - 9/4/2018
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