



北京理工大学国际特色课程

Beijing Institute of Technology Global Courses

FIN9572 - OPTIONS, FUTURES AND RISK MANAGEMENT

Syllabus

July. 1 - July. 19, 2024

Term Duration: July. 1 - July. 19, 2024

Credit Points: 4

Level: Postgraduate

Instructor Name: TBA

Home Institution: Beijing Institute of Technology

Lecture Hour: 12:30-15:30

Course Description

This course offers an in-depth exploration of the world of financial derivatives, including forward and futures, options, and swaps. It serves as a gateway to understanding how these instruments can be used for hedging, speculation, and arbitrage in the financial markets. The curriculum is structured to provide students with a robust framework for analyzing and employing various derivative products in different market conditions. Beginning with the basic principles of derivatives and progressing to complex pricing models and strategies, the course delivers a meticulous breakdown of theoretical concepts complemented by real-world applications. Moreover, students will engage with case studies and simulations that reinforce theoretical knowledge with practical skills, preparing them for the dynamic environment of financial trading and risk management.

Course Aims:

Upon successful completion of this course, students should be able to:

1. apply hedging strategies using forward, futures, options, and swap contracts to manage financial risks;
2. evaluate the risks and benefits of using derivatives for speculation purposes and construct speculative strategies accordingly;
3. master the techniques for analyzing valuation, hedging, speculation, and arbitrage;
4. employ derivatives for managing and hedging portfolio risk;
5. utilize binomial and Black-Scholes models for option pricing and assess the limitations of these models in real market conditions;
6. simulate trading scenarios and analyze the performance of derivative strategies through case studies and simulations;
7. identify risk management issues facing investors and corporations and learn how to utilize financial derivatives to create trading strategies and hedge against risk.

Language of Instruction

English

Required Textbook

Options, Futures and other Derivatives, 8th Edition

Author: John C. Hull

Publisher: Pearson

ISBN: 9780136015864

Futures, Options and Swaps, 5th Edition

Author: Robert W. Kolb

Publisher: Wiley-Blackwell

ISBN: 9780631214991

Other materials provided by the course lecturer.

Course Hours

This course requires 48 hours of contact including 42 hours of lectures and one 6-hour field trip. Lectures are from Monday to Friday.

Prerequisite Course

Students are expected to have taken **Principles of Finance** or to possess a thorough knowledge of the topics covered in the mentioned course.

Course Schedule

Week	Day	Lecture	Topic	Assignment/ Notes
Week 1	Day 1	Lecture 1	Mechanics of Futures Markets; Hedging Strategies Using Futures	John C. Hull (Chap 2-3)
	Day 2	Lecture 2	Interest Rates; Determination of Forward and Futures Prices; Interest Rate Futures	John C. Hull (Chap 4-6)
	Day 3	Lecture 3	The Options Market; Option Payoffs and Option Strategies Bounds on Option Prices	Robert W. Kolb (Chap 10-12)
	Day 4	Lecture 4	Option Sensitivities and Option Hedging	Robert W. Kolb (Chap 14)
	Day 5	Lecture 5	Properties of Stock Options; Trading Strategies Involving Options	John C. Hull (Chap 11-12)
Week 2	Day 6	Lecture 6	Binomial Trees	John C. Hull (Chap 13)
	Day 7	Lecture 7	The Black–Scholes–Merton Model	John C. Hull (Chap 15)
	Day 8	Lecture 8	Managing Market Risk	Recommended Reading Materials Provided in Class
	Day 9	Lecture 9	Interest Rate Derivatives: The Standard Market Models; Interest Rate Derivatives: Models of the Short Rate	John C. Hull (Chap 29, 31)
	Day 10	Industrial Visit		
Week 3	Day 11	Lecture 10	Credit Risk; Credit Derivatives; Real Options	John C. Hull (Chap 24,25,35)
	Day 12	Lecture 11	The Swaps Market: An Introduction; Swaps: Economic Analysis and Pricing	Robert W. Kolb (Chap 20-21)
	Day 13	Lecture 12	Swaps: Applications	Robert W. Kolb (Chap 22)
	Day 14	Guided Revision		

	Day 15	Final Exam
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Note: Students will be notified if the schedule of the field trip changes according to the situation.

Grading Policy

Items	Percentage
Participation	10%
Mid-Semester Test	20%
Group Project	20%
Final Exam	50%
Total	100%

Participation: Students are expected to attend all course sessions punctually. Absences will impact the attendance grade. We will have some case studies, quizzes and group discussion in class and the performance will be considered as partial attendance points or bonus.

Mid-Semester Test: The test will span a duration of 2 hours and will assess students on the material covered in the first half of the course. Students are expected to demonstrate their knowledge and analytical skills through this examination.

Group Project: Students will be organized into groups of 3-5 members. Each group is required to write a report, present it, and submit both the report and presentation slides after the presentation.

Final Exam: The final exam will be a comprehensive assessment encompassing all course content. This exam will have a duration of 3 hours, and students will be evaluated on their understanding and application of the material covered throughout the course.

Academic Honesty

Academic honesty is not only a fundamental part of learning and teaching, but also a core value that this course embraces. Behaviors of academic dishonesty, as outlined hereinafter, are unacceptable and will be penalized:

- a) Plagiarism where students present work for assessment, publication or otherwise that is not their own, without appropriate attribution or reference to the original source.
Plagiarism can include:
 - i) paraphrasing or copying published and unpublished work without a reference;
 - ii) adopting the ideas or concepts of others, including the structure of an existing analysis without due acknowledgement by way of reference to the original work or source.

- b) Collusion, where students present work as independent work when it has in fact been produced in whole or in part with others unless prior permission for joint or collaborative work has been given by the Course Coordinator. Collusion can include:
 - i) a student inappropriately assisting with or accepting assistance with the production of an assessment task;
 - ii) submitting work which is the same or substantially similar as another student's work for the same assessment task.
- c) Cheating, where a student acts in such a way as to seek to gain unfair advantage or assist another student to do so. Cheating can include:
 - i) submitting falsified, copied or improperly obtained data relating to results of practicum, field trips or other work as if they were genuine; submitting an assessment task with the intention of deceiving or misleading the instructor about the student's contribution to the work;
 - ii) submitting an assessment task written or answered for the student by another person or which the student has copied from another person;
 - iii) submitting the same or a substantially similar piece of work for assessment in two different courses (except in accordance with approved study and assessment schemes);
 - iv) a student falsely indicating that they have been present at an activity where attendance is required;
 - v) completing an assessment task outside the conditions specified for that task.
- d) Cheating in Examinations means engaging in dishonest practice or breaching the rules regarding examinations, which can include:
 - i) communicating in any way during an examination with any person who is not an examination supervisor inside or outside the examination venue;
 - ii) giving or accepting assistance from any person who is not an examination supervisor whilst in the examination venue;
 - iii) reading, copying from or otherwise using another student's work in an examination or knowingly allowing a student to do so;
 - iv) possessing, referring to or having access to any material or device containing information directly or indirectly related to the subject matter under examination, other than that explicitly approved by the Course Coordinator;
 - v) acquiring, or attempting to acquire, possess or distribute examination materials or information without approval;
 - vi) permitting another person to attend an examination on a student's behalf or attending an examination on behalf of another student;
- e) Other dishonest acts including but not limited to:
 - i) altering or falsifying any document or record for the purposes of gaining academic advantage;
 - ii) offering or giving money or any item or service to a University staff member or any other person to gain academic advantage for the student or another person;
 - iii) inventing references.