

**Sabancı MiF Program**  
**Fall 2021**  
**MFİN 862 – Derivatives & Risk Management**

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Type	Time	Days	Where
Class	18:00-21:00	Friday	Zoom / 205
Class	9:30-12:30 and 13:30-17:30	Saturday	Zoom / 111-112

### Course Objectives

This course serves as a comprehensive introduction to derivative securities such as forwards/futures, options and swaps. While the main emphasis is on the characteristics of different types of derivatives as risk-transferring/minimizing devices, valuations of such contracts are also covered. No arbitrage-based pricing is provided as the common underlying premise to valuing derivative securities. Binomial pricing of options, Black-Scholes-Merton option pricing formula, cost-of-carry valuation of forwards/futures, and swap pricing are introduced. In the second part of the course, the main emphasis is on how derivative securities are used against common risk factors such as interest rates, exchange rates and credit risk. In addition to hedging strategies created with derivative securities, various trading strategies involving options (spreads and combinations) are presented.

### Learning Outcomes

Upon successful completion of the course, the student should be able to:

1. Identify the characteristics and uses of options and apply option-based trading strategies for various purposes including hedging
2. Identify and analyze the influence of the value determinants of options
3. Use appropriate models for the valuation of options
4. Describe the nature of forwards, futures and swaps
5. Apply appropriate valuation methods for forwards, futures and swaps
6. Compute the sensitivity of option prices with respect to common factors
7. Understand why volatility smiles are observed in option markets
8. Describe how to manage interest rate and foreign exchange risk via futures/forwards, swaps

### Course Materials

*Fundamentals of Futures and Option Markets*, John C. Hull, 9th edition, 2016  
<https://www.homerbooks.com/urun/fundamentals-of-futures-and-options-markets>

## **Course Web**

Lecture slides/recordings, practice problems and other material will be posted on SuCourse+.

## **Instructional Design**

Online synchronous lectures will introduce students with the main concepts. The video recordings for these lectures will be made available to students as soon as possible and throughout the semester. The Zoom link is:

<https://zoom.us/j/9155172887>

Passcode: 939791

Students will have the opportunity to apply the knowledge they acquire in the lectures by working through the practice problems posted on SuCourse+ every week.

## **Grading**

Midterm Exam: 50%

Final Exam: 50%

## **Requirements**

*Exams:* The midterm and final exam dates are indicated below. You will be required to show all your work and you will get partial credit for it. There will be multiple versions of each exam.

There will be no make-up exams unless a situation arises which was unforeseeable and not under the control of the student. Requests for make-up exams must be made to the instructor as soon as possible and must be accompanied by relevant documentation.

*Lectures & Attendance:* Students are expected to attend the sessions and your attendance in these sessions will be tracked. However, this will only be used for reporting purposes and not impact your grades.

*Calculator:* Students will need a scientific or financial calculator throughout the course. Many of the problems encountered in the course require arithmetic operations that are difficult or impossible to be solved by hand or with a non-scientific or non-financial calculator. A scientific or financial calculator is useful to solve these problems efficiently in a limited time frame.

*Objections to Grading:* Students should make their objections and communicate them to the instructor no later than a week after receiving their grades.

*Special-needs students:* Any student who requires any special arrangements due to a disability in order to meet course requirements should contact me as soon as possible to make the necessary accommodations.

## **Pandemic Precautions**

If any physical lectures occur, social distancing will be observed. Both the instructor and the students must wear masks properly throughout the lecture. There will be no exception to this rule indoors and in the classrooms. In cases where a student insists not to follow this rule despite a reminder, the instructor will share the name and the ID of the student with the Faculty for necessary actions. The instructor may also cancel the lecture and deliver the amount of cancelled time asynchronously.

## **Academic Honesty**

Learning is enhanced through cooperation and as such you are encouraged to work in groups, ask for and give help freely in all appropriate settings. At the same time, as a matter of personal integrity, you should only represent your own work as yours. Any work that is submitted to be evaluated in this class should be an original piece of writing, presenting your ideas in your own words. Everything you borrow from books, articles, or web sites (including those in the syllabus) should be properly cited. Although you are encouraged to discuss your ideas with others (including your friends in the class), it is important that you do not share your writing (slides, MS Excel files, reports, etc.) with anyone. Using ideas, text and other intellectual property developed by someone else while claiming it is your original work is *plagiarism*. Copying from others or providing answers or information, written or oral, to others is *cheating*. Unauthorized help from another person or having someone else write one's paper or assignment is *collusion*. Cheating, plagiarism and collusion are serious offenses that could result in a failing grade and disciplinary action. Please pay utmost attention to avoid such accusations.

## Topics To Be Covered

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<b>Week 1</b>	<b>Date:</b> January 8 <b>Topic:</b> Intro + Mechanics of Option Markets + Properties of Stock Options
<b>Week 2</b>	<b>Date:</b> January 14 <b>Topic:</b> Binomial Trees & BSM Model <b>Date:</b> January 15 <b>Topic:</b> Futures and Forwards + Swaps
<b>Week 3</b>	<b>Date:</b> January 21 <b>Topic:</b> <i>Midterm Exam</i> <b>Date:</b> January 22 <b>Topic:</b> Trading Strategies Involving Options + Greek Letters
<b>Week 4</b>	<b>Date:</b> January 28 <b>Topic:</b> Hedging Strategies Using Futures <b>Date:</b> January 29 <b>Topic:</b> Volatility Smiles + FRAs
<b>Week 5</b>	<b>Date:</b> February 5 <b>Topic:</b> <i>Final Exam</i>

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