

## Course E-Syllabus

1	<b>Course title</b>	Derivatives and Financial Engineering
2	<b>Course number</b>	1603708
3	<b>Credit hours</b>	3
	<b>Contact hours (theory, practical)</b>	3
4	<b>Prerequisites/corequisites</b>	Financial Management
5	<b>Program title</b>	MA Finance
6	<b>Program code</b>	03
7	<b>Awarding institution</b>	University of Jordan
8	<b>School</b>	Business
9	<b>Department</b>	Finance
10	<b>Level of course</b>	MA
11	<b>Year of study and semester (s)</b>	2020/2021
12	<b>Final Qualification</b>	MA Finance
13	<b>Other department (s) involved in teaching the course</b>	
14	<b>Language of Instruction</b>	English
15	<b>Teaching methodology</b>	<input type="checkbox"/> Blended <input checked="" type="checkbox"/> Online
16	<b>Electronic platform(s)</b>	<input type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
17	<b>Date of production/revision</b>	9/11/2020

### 18 Course Coordinator:

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### 19 Other instructors:

Name:  
Office number:  
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Email:

Name:  
Office number:  
Phone number:  
Email:

## 20 Course Description:

As stated in the approved study plan.

This course involves the advanced study of derivative instruments in terms of their structure, uses, and pricing. After introducing the issuance and trading mechanisms of the different derivative instruments, the course goes in depth into the theoretical and practical guidelines that represent attempts to model the relationship between the expected payoffs and the risk inherent in derivative instruments. A great emphasis is given to building the theoretical background necessary to understanding how a derivative instrument may be priced and used for hedging investment risks.

## 21 Course aims and outcomes:

A- Aims:

Building a solid background on the types of derivatives instruments and its important applications in corporate finance and financial markets.

B- Intended Learning Outcomes (ILOs):

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

The goal of the class is to provide students with the analytical skills that help in using derivative instruments for hedging as well as for speculation purposes, understanding how the introduction of derivatives in the changes the risk return profile, analyzing portfolio volatility behavior when it involves positions in derivative instruments, and introducing the main pricing models (namely, Binomial Model and the Black-Scholes Option Pricing Model).

## 22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	Introduction	MS Teams	Class Discussions	Textbook
	1.2	Introduction	MS Teams	Class Discussions	Textbook
	1.3	Introduction	MS Teams	Class Discussions	Textbook
2	2.1	Mechanics of futures markets.	MS Teams	Class Discussions	Textbook
	2.2	Mechanics of futures markets	MS Teams	Class Discussions	Textbook
	2.3	Mechanics of futures markets	MS Teams	Class Discussions	Textbook
3	3.1	Mechanics of futures markets	MS Teams	Class Discussions	Textbook
	3.2	Mechanics of futures markets	MS Teams	Class Discussions	Textbook
	3.3	Mechanics of futures markets	MS Teams	Class Discussions	Textbook
4	4.1	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
	4.2	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
	4.3	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
5	5.1	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
	5.2	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
	5.3	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
6	6.1	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
	6.2	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
	6.3	Hedging strategies using Futures	MS Teams	Class Discussions	Textbook
7	7.1	Mechanics of options markets.	MS Teams	Class Discussions	Textbook
	7.2	Mechanics of options markets	MS Teams	Class Discussions	Textbook
	7.3	Mechanics of options markets	MS Teams	Class Discussions	Textbook
8	8.1	Mechanics of options markets	MS Teams	Class Discussions	Textbook
	8.2	Mechanics of options markets	MS Teams	Class Discussions	Textbook
	8.3	Mechanics of options markets	MS Teams	Class Discussions	Textbook
9	9.1	Mechanics of options markets	MS Teams	Class Discussions	Textbook
	9.2	Mechanics of options markets	MS Teams	Class Discussions	Textbook
	9.3	Mechanics of options markets	MS Teams	Class Discussions	Textbook
10	10.1	Interest rates	MS Teams	Class Discussions	Textbook

	10.2	Interest rates	MS Teams	Class Discussions	Textbook
	10.3	Interest rates	MS Teams	Class Discussions	Textbook
11	11.1	Determination of forward and futures prices.	MS Teams	Class Discussions	Textbook
	11.2	Determination of forward and futures prices.	MS Teams	Class Discussions	Textbook
	11.3	Determination of forward and futures prices.	MS Teams	Class Discussions	Textbook
12	12.1	Swaps	MS Teams	Class Discussions	Textbook
	12.2	Mechanics of options markets	MS Teams	Class Discussions	Textbook
	12.3	Mechanics of options markets	MS Teams	Class Discussions	Textbook
13	13.1	Properties of stock options.	MS Teams	Class Discussions	Textbook
	13.2	Trading strategies involving options	MS Teams	Class Discussions	Textbook
	13.3	Binomial trees.	MS Teams	Class Discussions	Textbook
14	14.1	Wiener Processes and Ito's Lemma.	MS Teams	Class Discussions	Textbook
	14.2	Wiener Processes and Ito's Lemma.	MS Teams	Class Discussions	Textbook
	14.3	Wiener Processes and Ito's Lemma.	MS Teams	Class Discussions	Textbook
15	15.1	The Black-Scholes-Merton Model	MS Teams	Class Discussions	Textbook
	15.2	The Black-Scholes-Merton Model	MS Teams	Class Discussions	Textbook
	15.3	The Black-Scholes-Merton Model	MS Teams	Class Discussions	Textbook

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz...etc

### 23 Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Midterm Exam	30%	TBA	9	Moodle
Project	30%	TBA	TBD	Moodle
Final Exam	40%	TBA	16	Moodle

**24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):**

The students are required to have a proficiency in all mathematics up to calculus, especially in algebra. Although no curricular prerequisite is required for this class, a working knowledge and comprehension of basic accounting, statistics and important concepts covered in basic Corporate Finance and Investment classes are assumed.

**25 Course Policies:**

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course:

**26 References:**

A- Required book(s), assigned reading and audio-visuals:

Options, Futures, and Other Derivatives, 10th edition, by John C. Hull, Pearson Education.

B- Recommended books, materials and media:

- Sundaram & Das: Derivatives: Principles and Practice. 2nd edition, McGraw Hill.
- Chance & Brooks: An Introduction to Derivatives and Risk Management, 7th edition, Thomson.
- Kolb: Futures, Options, & Swaps, 3rd edition, Blackwell.
- Mikosch: Elementary Stochastic Calculus, Vol. 6, World Scientific Publishing Co, 1998.

**27 Additional information:**

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Name of Course Coordinator: Dr. Adel Bino Signature: *Adel Bino* Date: 9/11/2020

Head of Curriculum Committee/Department: Dr. Mohammad Khataybeh Signature: *Mohammad Khataybeh*

Head of Department: ----- Signature: -----

Head of Curriculum Committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----