جامعة الزيتونة الأردنية

Al-Zaytoonah University of Jordan

Course Syllabus

According to JORDAN National Qualification Framework (JNQF)

Course Name:Introduction to Financial Mathematics

Course Number: 0101347

General Course Information:

Course Title	Introduction to Financial Mathematics
Course Number	0101347
Credit Hours	3 credit hours
Education Type	Blended learning
Prerequisites/Co-requisites	None
Academic Program	Mathematics
Program Code	
Faculty	Faculty of Science and Information Technology
Department	Mathematics
Level of Course	3
Academic Year /Semester	2023/2024 1st Semester
Awarded Qualification	BS'c
Other Department(s) Involved in Teaching the Course	-
Language of Instruction	English
Date of Production	2021-2022
Date of Revision	October 2023

Course Coordinator:

Coordinator's Name	
Office No.	
Office Phone Extension Number	
Office Hours	
E-mail	

Other Instructors:

Instructor Name	
Office No.	
Office Phone Extension Number	
Office Hours	
Email	

Course Description *(English/Arabic)*:

English	This course connect the mathematics concepts with financial sciences by focusing on: Simple Interest, Total Interest, Rate of Interest, Term of Maturity, Current Value, Future Value, Simple Discount, Ordinary Interest and Exact Interest, Focal Date and Equation of Value, Partial Payments, Bank Discount, Compound Interest, The Compounding Formula, Discount Factor, Cost, revenue and profit functions, consumer surplus and producer surplus.
Arabic	هذا المساق يربط المفاهيم الرياضية بالعلوم المالية بتركيزه على: الفائدة البسيطة، إجمالي الفائدة، معدل الفائدة، مدة الاستحقاق، القيمة الحالية، القيمة المستقبلية، الخصم البسيط، الفائدة العادية والفائدة الفعلية، التاريخ البؤري ومعادلة القيمة،

	المدفوعات الجزئية، الخصم البنكي، الفائدة المركبة، الصيغة المركبة، الخصم دالة العامل والتكلفة والإيرادات والأرباح وفائض المستهلك وفائض المنتج.

Textbook: *Author(s), Title, Publisher, Edition, Year, Book website.*

Information Technology Project Management, Schwalbe, Kathy, 2019, 9th Edition

References: *Author(s), Title, Publisher, Edition, Year, Book website.*

1. Mathematical Finance, 1st edition, By M. J. Alhabeeb, Wiley & Sons, 2012.
2. Robert Cissell, Helen Cissell, Mathematics of Finance, Houghton Mifflin, Boston, M.S.A, 2004.

Course Educational Objectives (CEOs):

CEO1	Develop a solid grasp of fundamental financial mathematics concepts, including time value of money, interest rates, and the concept of present value and future value.
CEO2	Apply mathematical tools and techniques to solve real-world financial problems.
CEO3	Develop strong quantitative and analytical skills that can be used to make informed financial decisions and evaluate the performance of financial instruments.

Intended Learning Outcomes (ILO's):

Intended learning outcomes (ILOs)		Relationship to CEOs	Contribution to PLOs	Bloom Taxonomy Levels*	JNQF Descriptors**
K	Knowledge and Understanding				
ILO1-k	Explanation of the basic laws in simple interest, commercial discount, correct discount, and basic laws in compound interest, regular and irregular payments	CEO 1	PLO2	Remembering	K
ILO2-k	Explanation of the method of settlement and payment of debts and how to repay loans in simple interest and compound interest.	CEO 1 CEO 2	PLO2	Understanding	K
ILO3-k	Describe the different types of repayment and amortization of bonds.	CEO 1 CEO 3	PLO3	Understanding	K
S	Intellectual skills				
ILO4-s	Calculating the correct trade discount and present value when paying off debts before maturity.	CEO 2	PLO5	Applying	S
ILO5-s	Calculating the total payments and the present value in simple interest, compound interest, discounting commercial papers, and comparison between banks when discounting.	CEO 2 CEO 3	PLO7	Analysing	S
C	Subject specific skills				
ILO6-c	Cooperate and work effectively in collaborative work tasks that are carried out through groups.	CEO 3	PLO11	Applying	C

D	Transferable skills:					
ILO6-d						
*Bloom Taxonomy Levels:						
Level #	1	2	3	4	5	6
Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
** Descriptor (National Qualification Framework Descriptors): K: Knowledge, S: Skill, C: Competency.						

Program Learning Outcome (PLOs):

(PLOs)		JNQF Descriptors**		
		K	S	C
1.	Knowledge of the main concepts in pure mathematics.	√		
2.	Knowledge of the main concepts in applied mathematics.	√		
3.	Explain concepts, principles and theories in the fields of probability and statistics.	√		
4.	Possession of technological culture related to the fields of mathematics and its applications.	√		
5.	Making use of mathematical logic in practical life.	√		
6.	Engaging scientific methodology as a way of thinking and as a tool in facing problems.		√	
7.	Applying mathematical software packages in problem solving.		√	
8.	Being capable of data analysis.		√	
9.	Capability of teaching according to modern educational techniques.		√	
10.	Develop creative and innovative methods of teaching mathematics.			√
11.	Showing the ability to work under ethical and professional standards within teams.			√
12.	Gaining critical thinking and scientific research skills.			√

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule *(please choose the type of teaching)*

- ☐ Face to Face (F2F)
- ☒ **Hybrid** *(One – To - One)*
- ☐ Online

Schedule of Simultaneous and their Topics:

Week	First Lecture (F2F)	Second Lecture	ILOs	PLOs	JNQF Descriptors*
1	Review, Simple Interest	Activity: (Short video) about the total interest and the rate of interest	ILO1-k	PLO1-k	K
2	Term of Maturity,	Activity:			

	Current Value, Future Value	(Homework) about finding n and r when the current and future values are both known	ILO4-s	PLO6-s	S
3	Simple Discount, Calculating the Term in Days	Activity: (Short video) about the ordinary interest and exact interest	ILO1-k ILO2-k	PLO3-k	K
4	Obtaining Ordinary Interest and Exact Interest in Terms of Each Other	Activity: (Short video) about the focal date and equation of value	ILO4-s	PLO7-s	S
5	Equivalent Time	Activity: (Homework) about finding the average due date	ILO1-k	PLO3-k	K
6	Partial Payments	Quiz about finding the simple interest rate by the dollar-weighted method	ILO4-s	PLO6-s	S
7	Bank Discount, Finding FV Using the Discount Formula	Quiz + Revision	ILO6-c	PLO11-c	C
Midterm Exam (30%)					
9	Finding the Discount Term and the Discount Rate	Activity: (Short video) about the difference between a simple discount and a bank discount	ILO4-s	PLO6-s	S
10	Comparing the Discount Rate to the Interest Rate	Activity: (video) about discounting a promissory note	ILO6-c	PLO11-c	C
11	Compound Interest	Activity: (Homework) about the compounding formula	ILO3-k	PLO2-k	K
12	Finding the Current Value, Discount Factor	Activity: (Homework) about finding the rate of compound interest	ILO3-s	PLO8-s	S
13	Finding the Compounding Term	Activity: (quiz) about the cost, revenue and profit functions	ILO4-s	PLO9-s	S
14	Equilibrium	Activity: (Short			

	value and price	video) consumer surplus and produce surplus	ILO4-s	PLO7-s	S
15	**Projects Discussion**				
16	**Final Exam**				

* **K: Knowledge, S: Skills, C: Competency**

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Lecture.
- Learning through problem solving.

Course Policies:

A- Attendance policies:
The maximum allowed absences is 15% of the lectures.
B- Absences from exams and handing in assignments on time:
Midterm exam can be retaken based on approval of excuse by the instructor's discretion.
Not handing assignment on time will incur penalties.
C- Academic Health and safety procedures
D- Honesty policy regarding cheating, plagiarism, and misbehaviour:
Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.
E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Homeworks, Quizzes) **20%**
- Midterm 30**%**
- Final Exam 50**%**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

Required Equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the ZUJ E-Learning Platform at https://exams.zuj.edu.jo/
- E-learning plan
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning

Assessment Tools Implemented in the Course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Periodic reports for learning assessment

Responsible Persons and their Signatures:

Course Coordinator	Iqbal Batiha	**Completed Date**	**Oct / 2023**

		Signature	
Received by (Department Head)		**Received Date**	/ /
		Signature	