The University of Jordan

Accreditation & Quality Assurance Center

Course Syllabus

Course Name:

Mathematics for Business Administrative

Course Syllabus

1	**Course title**	**Mathematics for Business Administrative**
2	**Course number**	(0331103)
3	**Credit hours**	3
	Contact hours (theory, practical)	3
4	**Prerequisites/corequisites**	None
5	**Program title**	
6	**Program code**	
7	**Awarding institution**	The University of Jordan
8	**School**	Science
9	**Department**	Mathematics
10	**Course level**	Mandatory Specialisation requirement
11	**Year of study and semester (s)**	1st , 2nd , 3rd or 4th year, 1st and 2nd or summer semester
12	**Other department (s) involved in teaching the course**	None
13	**Main teaching language**	English
14	**Delivery method**	Face to Face
15	**Online platforms(s)**	■Moodle ☐ Microsoft Teams ☐Skype ☐Zoom ☐Others……
16	**Issuing/Revision Date**	Nov. 2, 2022

17 Course Coordinator:

Name: Dr. Eman Aldabbas	Contact hours: 11:30 – 12:30 (Sun, Tue, Thu)
Office number: Math 312	Phone number: -
Email: e_aldabbas@ju.edu.jo	

18 Other instructors:

Name: Mrs. Imane Aldarawai Office number: Math 300 Phone number: - Email: i.aldarawai@ju.edu.jo Contact hours:11:30 – 12:30 (Sun, Tue, Thu)

19 Course Description:

As stated in the approved study plan. Linear functions: Graphs, solving system of linear functions. Economic applications: Supply and demand analysis. Non-linear functions: Quadric, exponential and logarithmic, economic applications: Revenue, cost and profit. Differentiation: Rules for differentiation, derivatives of exponential and logarithmic functions, chain rule, optimization, economic applications: Marginal Functions, elasticity of Supply and elasticity of demand. Partial derivatives: several variable functions, elasticity of demand as a multivariable function, implicit differentiation, utility function, unconstrained optimization, constrained optimization. Integration: definite and indefinite, Economic applications: Consumer's surplus, producer's surplus and investment flow. Matrices: Basic matrix operations, determinant properties, matrix inversion, Cramer's rule.

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20 Course aims and outcomes:

A- Aims The main aims of this course are:

1. Understand basic math skills that will make other economic courses much easier.
2. Use mathematics successfully in business and economic applications
3. Develop analytical and organizational skills.

B- Students Learning Outcomes (SLOs):

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

SLOs	SLO (1)	SLO (2)	SLO (3)	SLO (4)	SLO (5)	SLO (6)	SLO (7)	SLO (8)
1 solve a system of two simultaneous linear equations in two unknowns using elimination method and Identify and sketch a linear demand and supply functions and determine the equilibrium price and quantity.	●				●			
2 Solve quadratic equations and graph quadratic functions as: supply, demand, revenue and profit functions also find the maximum or minimum values for these functions.	●				●			
3 Find the first and second derivative of the function f(x) and all first and second order partial derivatives for f(x,y) in order to find and classify the stationary points	●							
4 Find economic functions as marginal functions associated with revenue, cost, production, and saving, and optimize these functions with constraint and without constraint.	●			●				
5 Master integration rules and evaluate definite integrals in simple cases then use integration to find total cost and revenue functions given their marginal functions and calculate producer and consumer's surplus.	●			●				
6 Understanding the basic matrix operations also find the inverse of (2x2) matrix (if it exists) to use the inverse in solving a system of linear equations or use Cramer's rule to solve a system of linear equations.	●							

21. Topic Outline and Schedule:

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	introduction to algebra	1	Face to Face				Text Book
	1.2	further algebra	1	Face to Face				Text Book
	1.3	the absolute Value function	1	Face to Face				Text Book
2	2.1	linear Functions	1	Face to Face				Text Book
	2.2	graphs of linear equations	1	Face to Face				Text Book
	2.3	supply and demand analysis	5	Face to Face				Text Book
3	3.1	transposition of formulae	1	Face to Face				Text Book
	3.2	algebraic solution of simultaneous linear equations.	1	Face to Face				Text Book
	3.3	quadratic functions.	1	Face to Face				Text Book
4	4.1	revenue, cost and profit	5	Face to Face				
	4.2	indices and logarithms	1	Face to Face				Text Book
	4.3	the exponential and natural logarithm function.	1	Face to Face				Text Book
5	5.1	exponential and	1	Face to Face				Text Book

		logarithmic equations						
	5.2	the derivative of a function	1	Face to Face				Text Book
	5.3	rules of differentiation.	1	Face to Face				Text Book
6	6.1	further rules of differentiation	1	Face to Face				Text Book
	6.2	the derivative of the exponential and the natural logarithm functions.	1	Face to Face				Text Book
	6.3	marginal functions (MR,MC, MP_L, MPC, MPS)	5	Face to Face				Text Book
7	7.1	elasticity	5	Face to Face				Text Book
	7.2	optimization of economic functions	5	Face to Face				Text Book
	7.3	further optimization of economic functions		On Campus				Text Book
8	8.1	**Midterm**	5	Face to Face				
	8.2	functions of several variables- partial derivatives	1	Face to Face				Text Book
	8.3	partial derivatives	1	Face to Face				Text Book
9	9.1	Elasticity as a function of several variables	1	Face to Face				Text Book

	9.2	implicit Differentiation-Utility	5	Face to Face				Text Book
	9.3	unconstrained optimization	5	Face to Face				Text Book
10	10.1	unconstrained optimization	5	Face to Face				Text Book
	10.2	unconstrained optimization	5	Face to Face				Text Book
	10.3	constrained optimization	1	Face to Face				Text Book
11	11.1	constrained optimization	1	Face to Face				
		indefinite integration	1	Face to Face				Text Book
	11.3	indefinite integration	5	Face to Face				Text Book
12	12.1	**Second Exam**		On Campus				Text Book
	12.2	definite integration	1	Face to Face				Text Book
	12.3	Consumer's surplus and Producer's surplus	1	Face to Face				Text Book
13	13.1	Investment flow	1	Face to Face				Text Book
	13.2	basic matrix operations	1	Face to Face				Text Book
	13.3	basic matrix operations	1	Face to Face				Text Book
14	14.1	determinant properties	1	Face to Face				Text Book
	14.2	matrix inversion	1	Face to Face				Text Book
	14.3	system of linear equations	1	Face to Face				Text Book
15	15.1	Cramer's rule	5	Face to Face				Text Book
	15.2	Cramer's rule	5	Face to Face				Text Book
	15.3	applications	1,5	Face to Face				Text Book

22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:					
Evaluation Activity	**Mark**	**Topic(s)**	**SLOs**	**Period (Week)**	**Platform**
Midterm	30	Linear Equations and their applications, Non linear equations and their applications, Differentiation Rules and Marginal Functions			On Campus
Second Exam	20	Optimization of functions of one variable, Multivariable functions and optimization of multivariable functions			On Campus
Final Exam	50				On Campus

23 Course Requirements

No requirements.

24 Course Policies:

A- Attendance policies: Attendance is absolutely essential to succeed in this course. You are expected to attend every class; please notify your instructor if you know you are going to be absent. If a student is absent for more than 10% of lectures without an excuse of sickness or due to other insurmountable difficulty, then he/she shall be barred from the final examination also he/she will get a failing grade in this course. **B- Absences from exams and submitting assignments on time:**All exams must be taken at the scheduled time. Exceptions will be made only in extreme circumstances, by prior arrangement with the instructor. Students must attend all the exams, students with acceptable excuse will have an average of the other exams. Medical certificates shall be given to the University Physician to be authorized by him. **C- Health and safety procedures:** **D- Honesty policy regarding cheating, plagiarism, misbehavior:** Cheating is prohibited. The University of Jordan regulations on cheating will be applied to any student who cheats in exams or on homework. **E- Grading policy:**Test papers shall be returned to students after correction. His/her mark is considered final after a lapse of one week following their return. **F- Available university services that support achievement in the course:** We will use the E-learning platform to upload lecture notes and other useful material.

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25 References:

A- Required book (s), assigned reading and audio-visuals: Ian Jacques, Mathematics for Economics and Business. 9th Edition B- Recommended books, materials, and media: Okon Umoh and Eammanuel P. Udofia, Mathematics for Economics Business and the Social Sciences.

26 Additional information:

Name of Course Coordinator: Dr. Eman Aldabbas Signature: ----------
Date: Nov 2nd,2022----------
Head of Curriculum Committee/Department: Prof. Ahmad Al Zghoul-- Signature: ---------- ----------
Head of Department: -Prof. Manal Ghanem - Signature: -M. Ghanem
Head of Curriculum Committee/Faculty: ---------- Signature: ----
Dean: Mahmoud Jaghoub Signature: ----------