Faculty of Economics and Political Science

Introduction to Mathematics

Information :

Course Code :	MTH 101	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Faculty of Economics and Political Science

Instructor Information :

Title	Name	Office hours
Professor	Mahmoud Mostafa Rashwan Abd Elnaser	2
Lecturer	Rania Ramadan Moawad Mohamed	3

Area Of Study :

This course introduces students to the basic mathematical tools. It deals with real numbers, their properties, inequalities and absolute values. It also explains functions and graphs (composition of functions, domain of a function, inverse functions, elementary functions, rational functions as well as exponentials and logarithms). The course includes limits and continuity rules, rules of differentiation and chain rule. Moreover, it provides students with fundamental theorem of calculus.

Course Goals:
ÅImprove Mathematical reasoning and skills.
ÅProvide students with fundamental Algebraic and computational concepts and properties of Real Numbers and Functions.
ÅUnderstand the concept of Limits and Continuity of Functions.
ÅRecognize the relevance of the mathematics to other fields of studies.

Description :

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Course outcomes :

a.Knowledge and Understanding: :

1 -	Define Integration and its simple methods.
2 -	Describe Intermediate Algebra.
3 -	Outline different mathematical objects and rules of algebra to deal with equations and inequalities.
4 -	Acquire quantitative foundation of mathematics for further study.
5 -	Identify the basic concepts of determinants and matrices.
6 -	Describe the basic concepts of calculus and their applications.
7 -	Recognize the concepts of derivatives of the algebraic, trigonometric functions, limits and continuity of functions.

b.Intellectual Skills: :	
1 -	Justify economic situations in the real life and using standard mathematical models.
2 -	Explain the principles of mathematics associated with other modules and relate their importance to real world cases.
c.Professional and Practical Skills: :	
1 -	Use mathematical procedures and techniques in economics and business.
2 -	Apply Derivatives to solve economic problems and sketching graphs.
3 -	Solve economic problems through systematic approach.
d.General and Transferable Skills: :	
1 -	Use critical thinking methods for solving problems and decisions making.
2 -	Work in groups and individually.
3 -	Know how to work towards solutions.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Review of College Algebra	3	1	
Real Numbers - Inequalities - Absolute values and Application	3	1	
Functions and Graphs	6	2	
Inverse Functions and their Applications	3	1	
Geometry of the Plane - Distance between Two Points - Slope - Forms of Equation of straight line, Circle - Conic Sections.	6	2	
Mid-term Exam		1	
Limits and Continuity - Derivative and Rules of Differentiation - The Chain's Rule.	6	2	
Applications of the Derivative - Sketching Graphs	3	1	
Matrix Algebra	3	1	
Integration - Indefinite Integrals - Fundamental Theorem of Calculus - Definite Integrals - Methods of Integration	6	2	
Final Exam		1	

Teaching And Learning Methodologies :

Data show and computer in lectures
Group discussion
Research Paper

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Course Work (Attendance, Participation, Assignments, Quizzes,Research Paperé)	30.00		assess theoretical background of the intellectual and practical skills
Final Exam	40.00	15	assess knowledge and intellectual skills.
Midterm Exam	30.00	8	assess professional skills.

Course Notes :
Instructorôs handouts

Recommended books :
Ernest F. Haussler (et. al.), Introductory Mathematical Analysis for Business, Economics and the Life and Social Sciences. Prentice Hall, 2007.