UNIVERSITY of NICOSIA

Course Syllabus

Course Code	Course Title	ECTS Credits
MATH-108	Finite Math and Applied Calculus	6
Prerequisites	**Department**	**Semester**
MATH-105	Computer Science	FALL/SPRING
Type of Course	**Field**	**Language of Instruction**
Required	Mathematics	English
Level of Course	**Lecturer(s)**	**Year of Study**
1st Cycle	Dr. Eleni Argyridou	1st
Mode of Delivery	**Work Placement**	**Corequisites**
Face-to-face	NA	None

Course Objectives:

The main objectives of the course are to:

- Introduce students to linear models and provide them with the necessary knowledge to set them up using realistic data.
- (Discuss matrix operations and Gauss-Jordan elimination in detail.)
- Introduce students to matrix theory and its applications.
- Cover linear systems of m equations with n unknowns.
- Introduce students to nonlinear problems.
- Discuss the derivative and its applications in detail.
- Introduce students to the integral and its applications.

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Implement linear model theory to set up and solve problems related to their majors.
2. Use Gauss-Jordan elimination to solve linear systems.
   Use matrices to solve linear systems.
3. Compute derivatives and basic integrals.
4. Use derivatives and integrals to solve applied problems

Course Content:

1. Chapter 1: Linear Functions and Applications
   a. Linear Functions
   b. Linear Models
2. Chapter 2: Systems of Linear Equations, Matrices and Applications
   a. Systems of two equations in two unknowns
   b. Applications of systems of linear equations
   c. Matrix addition and scalar multiplication
   d. Matrix multiplication and inversion
   e. Using matrices to solve systems of equations
3. Chapter 3: Nonlinear Functions and Applications
   a. Quadratic functions and models
   b. Exponential functions and models
   c. Logarithmic functions and models
   d. Logistic functions and models
4. Chapter 4: The Derivative and its Applications
   a. Average rate of change
   b. The derivative
   c. Derivative of powers, sums and constant multiples
   d. Marginal analysis
   e. Product and quotient rules
   f. The chain rule
   g. Derivatives of logarithmic and exponential functions
   h. Maxima and minima
   i. Applications of maxima and minima
5. Chapter 5: The Integral and its Applications
   a. Introduction to the indefinite integral
   b. Substitution
   c. Integration by parts
   d. Applications to business and economics

Learning Activities and Teaching Methods:

Lectures, Handouts, Assignments and In-class Exercises

Assessment Methods:

Final Examination, Midterm Examinations, Assignments and Participation.

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Finite Mathematics and Applied Calculus	Waner-Costenoble	Thomson/Brooks/Cole	2007	9750495019480

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Finite Mathematics and Applied Calculus	Frank C. Wilson	Houghton Mifflin	2007	978-0618332915