



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
1 st Cycle	Dr. Marios A. Christou	1 nd
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.
- 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.
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