

American University of Beirut
Faculty of Arts and Sciences
Department of Mathematics
COURSE SYLLABUS

Number and Title of the Course: MATH.204, Mathematics for Social Sciences II (3 credits)

1. Course Learning Outcomes

At the end of the course, students are expected to:

- Have a good understanding of the nature and algebra of matrices and determinants and work with systems of linear equations and applications involving matrix operations.
- Understand the fundamentals of set operations, counting methods, basic notions of probability, and the computations of probabilities for selected statistical environments.
- Identify certain probability distributions (such as the binomial, hypergeometric, and normal) and be able to fit real life situations to these models.
- Compute differentiation, indefinite and definite integration, interpret their meanings, and be able to handle various applications.
- Solve simple differential equations and initial value problems.
- Have knowledge of some numerical methods of approximating definite integrals (such as the rectangle, trapezoidal and Simpson's rules).
- Be able to handle functions of several variables, partial derivatives, and optimization of such functions.

2. Resources Available to Students

Textbook: Applied Mathematics for Business, Economics, and the social Sciences by Frank S. Budnick, Fourth Edition. Publisher: McGraw-Hill International Editions
ISBN 0-07-112580-9

3. Grading Criteria:

Assessment of the students' performance will be based on :

- Quiz I 25%
- Quiz II..... 25%
- Final Exam.....50%

4. Schedule:

<u>WEEK</u>	<u>SECTION(S)</u>
1.	9.1 Introduction to Matrices 9.2 Special Types of Matrices 9.3 Matrix Operations
2	9.4 The Determinant 9.5 The Inverse of a Matrix (Part One)
3	9.5 The Inverse of a Matrix (Part Two) 9.6 Selected Applications

4	13.1 Int. to Sets and Set Operations 13.2 Permutations and Combinations
5	13.3 Basic Probability Concepts 13.4 Statistical Independence and Dependence
6	14.1 Random Variables and Probability Distributions 14.2 Central Tendency and Variation
	<u>QUIZ I</u> (25%)
7	14.3 Binomial Distribution 14.4 The Normal Distribution
8	15.5 Differentiation 15.6 Additional Rules of Differentiation 15.7 Instantaneous Rate-of-Change
9	15.8 Higher Order Derivatives 18.1 Antiderivatives 18.2 Rules of Integration
10	18.3 Additional Rules of integration 18.4 Other Techniques of integration 18.5 Differential Equations
11	19.1 Definite Integrals 19.2 Definite Integrals and Areas
	<u>QUIZ II</u> (25%)
12	19.3 Methods of Approximation 19.4 Applications of Integral Calculus
13	20.1 Graphical Representation of Bivariate Functions 20.2 Partial derivatives
14	20.3 Optimization of Bivariate Functions
15	<u>FINAL EXAM.</u> (50%)

5.Course policy:

- The grade for an unexcused missed quiz will be a zero. However ,upon presenting a valid excuse within one week of the quiz date , the percentage distribution will be modified in the following manner:

- i) **FINAL EXAM. (67%)**
- ii) **THE QUIZ TAKEN (33%)**

- Coming late to lecture is disruptive to the class .The instructor reserves the right of rejecting such students.
- The university policy regarding incomplete work and other issues will be followed. Check the AUB catalogue for details.