UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Economiche, Aziendali e Statistiche
ACADEMIC YEAR	2016/2017
BACHELOR'S DEGREE (BSC)	BUSINESS ECONOMICS AND ADMINISTRATION
SUBJECT	GENERAL MATHEMATICS
TYPE OF EDUCATIONAL ACTIVITY	A
AMBIT	50062-Statistico-matematico
CODE	04897
SCIENTIFIC SECTOR(S)	SECS-S/06
HEAD PROFESSOR(S)	PECORELLA ANTONIO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	8
INDIVIDUAL STUDY (Hrs)	124
COURSE ACTIVITY (Hrs)	76
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**PECORELLA ANTONIO** Monday 15:00 17:00 Tuesday 15:00 17:00 Wednesday 15:00 17:00

DOCENTE: Prof. ANTONIO PECORELLA

PREREQUISITES	Basic knowledge of calculus, powers and their properties, logarithms and their properties, trigonometry.
LEARNING OUTCOMES	Knowledge and ability to understand: Knowledge of basic definitions and theorems of the analysis of differential calculus for functions of one real variable. Knowledge of differential calculus applications. Knowledge of definitions and fundamental theorems of linear algebra. Knowledge of linear algebra applications. Ability to understand the logical-deductive structure of a scientific text. Ability to apply knowledge and understanding: Ability to use the differential calculus for real variable functions. Ability to use linear algebra concepts in practical applications. Ability to represent real problems using mathematical models. Making judgments: The student must be able to evaluate and analyze the logical-deductive process of a mathematical model. The student must recognize the appropriateness of different mathematical models to solve a real problem. Communication skills: Ability to expose the consequences of the adoption of specific mathematical tools for the analysis of real problems. Learning skills: Ability to activate the logical-deductive process for analyzing and solving real problems.
ASSESSMENT METHODS	THE FINAL The final consists of a test that includes 6 exercises and a discretionary oral examination. Students are required to complete the test in two hours. ASSESSMENT CRITERIA The evaluation of the final test is based on the assessment of the following facets: i) competence; ii) ability to apply studied concepts, methods, and theorems; iii) knowledge of mathematical formalism and notation.
EDUCATIONAL OBJECTIVES	OBJECTIVES OF UNIT 1: DIFFERENTIAL CALCULUS OF ONE REAL VARIABLE 1) formulate and prove the fundamental theorems of differential calculus for functions of one real variable; 2) use the theorems and rules of differential calculus for the analysis of functions of one variable; 3) explain and motivate the steps of the logical-deductive process that allow one to represent a real problem using a mathematical model. OBJECTIVES OF UNIT 2: MATRIX ALGEBRA 1) construct a system of linear equations and recognize the structure of the system; 2) represent in a tabular form a linear system, and solve it through Rouche - Capelli and Cramer theorems ; 3) interpret the solution of the system; 4) formulate and prove the fundamental theorems of linear algebra; OBJECTIVES OF UNIT 3: INTEGRAL CALCULUS 1) Use theorems and rules of integral calculus to analyze functions of one variable; 2) use the knowledge and skills developed during the course to analyze and describe real problems through matematical model.
TEACHING METHODS	Lectures (40 hh) and in-class exercises (36 hh). The course is organized in three units: 1) differential calculus for functions of one real variable; 2) matrix algebra; 3) integral calculus
SUGGESTED BIBLIOGRAPHY	Boieri P. - Chiti G. Precorso di Matematica Ed. Zanichelli Guerraggio A. Matematica Ed. Mondadori Marcellini P. - Sbordone C. Calcolo Esercitazione di matematica 1° volume parte prima Ed. Liguori Marcellini P. - Sbordone C. Calcolo Esercitazione di matematica 1° volume parte seconda Ed. Liguori

SYLLABUS

Hrs	Frontal teaching
2	Educational objectives of the course, and course organization
2	Ensembles
2	The logic of proofs
2	Numeric ensembles
2	Properties of real numbers
2	The function
2	Limits

SYLLABUS

Hrs	Frontal teaching
4	Theorems regarding limits
2	Continuos functions
2	Derivative of a function
2	Fundamental theorems of differential calculus
4	Function analysis
2	Matrix algebra
2	Determinant matrix
4	Linear equations systems
4	Indefinite and definite integral

Hrs	Practice
2	Equations and disequations of first and seconth degree
4	Injective, surjective and invertible function
4	Composite function
2	Limits
4	Calculation of limits
2	Derivative of a function
4	Study of function
2	Determinant matrix
6	Systems of linear equations
6	Indefinite and definite integral