

MATHEMATICS COURSE OUTLINE

SCHOOL	AGRICULTURAL SCIENCES			
DEPARTMENT	FOOD SCIENCE AND NUTRITION			
EDUCATION LEVEL	Undergraduate			
LECTURE CODE	BΠ112 SEMESTER A'			
LECTURE TITLE	MATHEMATICS TEACHERS: Chr. PAPAIOANNOU			
SELF-ENDED TEACHING ACTIVITIES in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits			WEEKLY TEACHING HOURS	CREDIT UNITS (ECTS)
Διαλέξεις			3	5
Ασκήσεις Πράξης			1	
COURSE TYPE	GENERAL INFRASTRUCTURE (Background)			
Background, General				
Knowledge, Scientific Area,				
Development				
PREREQUISITE COURSES:	NO			
LANGUAGE OF INSTRUCTION	GREEK			
and EXAMINATIONS:				
THE COURSE IS OFFERED TO	NO (Yes as long as there is a request from Erasmus students)			
ERASMUS STUDENTS				
COURSE WEBSITE (URL)				

LEARNING OUTCOMES

Learning Outcomes

The course is the only one in the curriculum in which students are trained in Higher Mathematics (Differential and Integrative Calculus) and Statistics.

The material of the course aims to present the most basic theoretical results of Differential and Integral Calculus, Linear Algebra, Probability and Statistics- Biostatistics.

It also presents numerical methods that connect the theory and its practical application in quantity calculations, when the data comes from experience.

With the successful completion of the course, students will be able to:

- Understands the basic theoretical results of Differential and Integral Calculus, Linear Algebra, Probability and Statistics.
- It distinguishes, according to the conditions of the problem, which result it will use and which numerical data it may need to collect, from ready-made tables or from sampling.

General Skills

- Adjusting to new situations
- Decision making
- Unguided (Autonomous) work





COURSE CONTENT

1st week

Finding function type from numerical data. Estimate function value, solve equation, find absolute error and relative absolute error from interpolation polynomial. First Knowledge of Biomathematics: Linear Algebra, Natural numbers, Identities, Graphical Representation of Functions.

2nd week

Derivatives: Definition, interpretation, derivatives of elementary functions, rules for finding derivative.

3rd week

The Taylor polynomial as an extension of the Mean Value Theorem and its use in function estimation, limit computation, and equation solving.

4th week

The Newton – Raphson method for solving an equation numerically. Theory of Tables.

5th week

Monotonicity and extremes: Solving max-minimum problems

6th week

Indefinite Integral: Calculation methods.

Definite Integral: Interpretation, exact and approximate calculation methods. General on Infinite Calculus: Derivative – Integral – Differential Equations.

7th week

Optional Progress Exam (weight 40%) - Εξέταση προόδου

8th week

Differential equations: solutions of elementary differential equations.

9th week

Elements of set theory and combinatorial elements Basic concepts of probability theory. Probability theory: discrete and continuous distributions

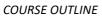
10th week

Descriptive Statistics: Measures of Location and Dispersion, Least Squares Line.

11th week

Estimation: Point estimate, Confidence interval of mean, percentage, variance.





12th week

Random variables – Distributions: Probability distributions, Parameters of distributions, Normal distribution, Student's distribution.

Biostatistics-Biomathematics in Food and Nutrition Science.

13th week

Assumption testing of mean, percentage, variance Testing mean, percentage, variance assumptions

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TEACHING METHOD	Face-to-face lectures in a classroom.				
USE OF INFORMATION AND	Use of T.P.E. in teaching.				
COMMUNICATION TECHNOLOGIES					
	Support of the learning process with the e-class electronic platform.				
	Contact by e-mail.				
TEACHING ORGANISATION	Activity	Semester's Workload			
	Lectures	39			
	Practice exercises	13			
	Bibliograpy stude				
	and analysis				
	Writing problem solving				
	assignements				
	Unguided study	73			
	Total (25 workload				
	hours per Credit unit)	125			
STUDENT EVALUATION	i. Written progress exam (after the 7th lecture):				
	participation of 40% of the final grade.				
	ii. Final written exam: participation of 60% of the final				
	grade. The written exams include Problem Solving where:				
	 The correct use of Theory 				
	 The correct use of ready-made data tables 				
	 The ability to perform complex numerical calculations 				

RECOMMENDED BIBLIOGRAPHY

Suggested Bibliography of the "Eudoxus" System:

- 1) Papaioannou & Kosmas Ferentinos, Medical Statistics and Biomathematics data, Volume A', Book Code in Eudoxus: 22855
- 2) Petridis D., Applied Statistics in Food and Nutrition Science, Book Code in Eudoxus: 102075301
- Vassilis G. Stavrinos, Demosthenes V. Panagiotakos, Biostatistics, Book Code in Eudoxus: 31148
- 4) Papadopoulos G., An Introduction to Probability and Statistics, Book Code in Eudoxus: 50659284
- 5)