COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Agricultural Sciences		
ACADEMIC UNIT	Biosystems & Agricultural Engineering		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**BAE_110**	**SEMESTER**	**1ST**
COURSE TITLE	**MATHEMATICS I**		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	
Tutorials	2	
Laboratory	0	
TOTAL	**5**	**5**
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Background
PREREQUISITE COURSES:	There are no prerequisite courses. Knowledge of High School Mathematics is required
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek .-For Erasmus students in English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes. Project work
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The material of the course Mathematics I is a tool for the students of the Department of Biosystems Science and Agricultural Engineering which aims to introduce and familiarize them with the concepts and methodologies of applied mathematics for engineers which are a tool in their science. The subject of the course includes an introduction to Differential and Integral Calculus and Linear Algebra. This knowledge is required as a basis for supporting the learning process of the EVGM specialty.

Upon successful completion of the course the student will be able to: effectively use differential and integral calculus as well as linear algebra in the next courses of his studies in the field of Biosystems Science and Agricultural Engineering.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
	Showing social, professional and ethical responsibility and

Working independently *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking* *……* *Others…* *…….*
1. Autonomous Work 2. Teamwork 3. Decision Making 4. Critical analytical and synthetic thinking for solving mathematical problems in Agricultural Engineering	

(3) SYLLABUS

1. 1. Differential calculus of functions of a variable
2. Integral calculus of functions of a variable
3. Rows of numbers and functions
4. Table Theory
5. Defining
6. Linear dependence and independence
7. Homogeneous Systems of linear equations
8. Non-Homogeneous Systems of Linear Equations
9. Eigenvalues - Eigenvectors
10. Operators
11. Vectors and Coordinate Systems in 3D Space.
12. Problem solving
13. Overlay-Summary

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Teaching in the amphitheater: Lectures using electronic media which relate to the theory, exercises and applications in the area of Biosystems and Agricultural Engineering.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	• Use of ICT (power point) in Teaching • Use of ICT (power point) in Laboratory Training • Use of ICT in Communication with students (Learning process support through the electronic platform e-class).
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public*	Written or oral final exam with physical presence or online with or without contribution of project work during the semester The evaluation is dynamic. It mainly involves problem solving. is done orally or in writing or with a combination of the two, with or without pre-examination on the basic principles of the course, with or without exculpatory advances and with other test or inventive methods,

Activity	***Semester workload***
Lectures	39
Tutorials	26
Unguided study	57
Final Exams	3
Course total	***125***

presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	depending on the composition of the dynamics and the needs of the audience. 4. The above are done in the Greek language. For foreign language students (eg Erasmus students) conducted in English

(5) ATTACHED BIBLIOGRAPHY (IN GREEK)

- *Ξένος Θ., Γραμμική Άλγεβρα, Εκδόσεις Ζήτη, Θεσσαλονίκη, 2004*
- *MorrisA.O., Μια εισαγωγή στη γραμμική άλγεβρα, Μετ. Δ.Ι. Δεριζιώτη, Εκδόσεις Πνευματικού, Αθήνα, 1980*
- *Φελλούρης Σ., Γραμμική άλγεβρα και αναλυτική γεωμετρία, Εκδόσεις Τρίτη, Αθήνα, 1989*
- *Γραμμική άλγεβρα και εφαρμογές, Strang, GilbertΠάμφιλος, Πάρις Κ. , - 1995 2013*
- *Γραμμική άλγεβρα, Στρατηγόπουλος Δημήτρης - 1980*