COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	AGRICULTURE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	AGRI_102	**SEMESTER OF STUDIES**	1st
COURSE TITLE	MATHEMATICS		

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*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	3	
Seminars	1	
Total	4	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, General Knowledge
PREREQUISITE COURSES:	Typically, there are not prerequisite courses.
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (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 course aims to provide the students of the Department of Agriculture knowledge of applied mathematics in the areas of differential and integral calculus of one or more variables, linear algebra, differential equations and numerical analysis. Such knowledge is necessary and used in subsequent courses of the Department of Agriculture. In addition, solving problems from the area of Agriculture that require knowledge of mathematics, attempts to make the students understand the usefulness of mathematics as a tool for solving problems in Agricultural science.

By the end of this course the student will be able to:

1. Effectively use the differential calculus and linear algebra in the following courses in his/her studies in the science of Agriculture as well as on problems as an Agronomist.

2. Perform mathematical modeling of problems as an Agronomist in which use is made of the above areas of mathematics.
3. Effectively use the computer and spreadsheet software in mathematics and their applications in Agriculture.

General Abilities

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
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Generally, by the end of this course the student will, furthermore, have develop the following general abilities (from the list above):

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Production of free, creative and inductive thinking

3. SYLLABUS

1. Functions, limits and continuity (Part I & Part II)
2. Differential calculus of functions with one variable (Part I & Part II)
3. Integral calculus of functions with one variable (Part I & Part II)
4. Differential equations (Part I & Part II)
5. Linear algebra (Part I & Part II)
6. Differential calculus of functions with many variables (Part I & Part II)
7. Introduction to numerical methods

4. TEACHING AND LEARNING METHODS - EVALUATION

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures and problem-solving seminars.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. Problem solving with the use of spreadsheet software. Direct communication with the students (face to face and by e-mail), Support of the learning process and uploading of the educational material to the electronic platform (e-class): https://eclass.upatras.gr
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.*	

Activity	*Semester workload*
Lectures (3 contact hours per week x 13 weeks)	39
Tutorial (1 conduct hours per week x 13 weeks)	13
Mid-term examinations (2 mid-term examinations x 2 contact hours each)	4

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	Hours for private study of the student and preparation for mid-term or/and final examination / Final examination	69
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	***125 hours (total student work-load)***
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 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.*	1. Optionally, two mid-term examinations with the final examination grade to be the mean mark. It is mandatory to obtain pass grade (≥5) in each examination. 2. Written examination after the end of the semester. Minimum passing grade: 5. All the above are taking place in Greek as well as in English for foreign students (e.g. ERASMUS students) if any.	

5. RECOMMENDED LITERATURE

1. THOMAS Calculus, [George B. Thomas], Jr., Joel Hass, Christopher Heil, Maurice D. Weir, Addison-Wesley Pubs.