COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Agricultural Sciences		
ACADEMIC UNIT	Biosystems & Agricultural Engineering		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**BAE_701**	**SEMESTER**	**7th**
COURSE TITLE	**APPLICATIONS OF GEOGRAPHICAL INFORMATION SYSTEMS IN AGRICULTURE**		

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 and Scientific Area
PREREQUISITE COURSES:	There are no prerequisite courses.
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek. For Erasmus students in English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
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*

This course aims to familiarize students with the use of the capabilities of Geographic Information Systems (GIS). Various ways of solving problems related to agricultural production are presented, through the application of methodologies for analysis and processing of spatial (vector and lattice) data. Specifically, among the most important problems that are solved by using spatial information in a GIS environment are the land use planning, the degradation of soil resources (eg risk of erosion), the location of the agricultural activities, etc.

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

- the concept of sustainable agriculture and how agricultural systems contribute to sustainable production through the adoption of good agricultural practices.
- the parameters of agricultural systems, integrated management, precision agriculture, organic farming, and how they affect the environment
- the environmental / agri-environmental indicators as an assessment tool for the sustainability of an agricultural holding
- the concept of ecological footprint

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*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

At the end of this course the student will have further developed the following general skills:
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
Production of new research ideas
Respect for the natural environment
Criticism and self-criticism
Production of free, creative and inductive thinking

(3) SYLLABUS

- Analysis and perception of the space.
- Methodology for displaying geographical information by type and application.
- Digital Terrestrial Models (DTM)
- Multi-criteria Spatial Models
- GPS applications for the selection of agricultural sites.
- Development of a GIS application for the assessment of the risk of soil degradation.
- Application development: Calculation of surface water runoff volume

Tutorial exercises

The tutorial exercises aim to familiarize students with concepts and methodologies that are analyzed in the theoretical part.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Lectures in the amphitheatre and laboratory exercises both in the laboratory and in the field.
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 Tutorial 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.*	

Activity	***Semester workload***
Lectures	39
Tutorials	20
Writing short reports of laboratory exercises- Exams	21
Study hours and preparation for the laboratory exercises and the final examination	45

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	Course total: ***125***
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. The examination in the theory of the course is done with a comprehensive questioner or a multiple-choice questioner that focus on the understanding of the course giving weight to the student's critical ability. 3. Oral exams may take place in cases of students who have been exempted from the writing exams and always the same time and day as the writing exams. 4. The above are done in the Greek language. For foreign language students (eg Erasmus students) conducted in English

(5) ATTACHED BIBLIOGRAPHY (In Greek)

- Suggested bibliography:
  - Κόλλια Β., Καλύβας Δ., Τριαντακωνσταντής Δ., 2012. Γεωγραφικά Πληροφοριακά Συστήματα. Εκδόσεις ΕΜΒΡΥΟ