COURSE OUTLINE

1. GENERAL INFORMATION

FACULTY/SCHOOL	SCHOOL OF PLANT SCIENCE		
DEPARTMENT	DEPARTMENT OF CROP SCIENCE		
LEVEL OF STUDY	BACHELOR OF SCIENCE		
COURSE UNIT CODE	914	**Semester:**	5th/6th
COURSE TITLE	STATISTICAL DATA ANALYSIS USING STATISTICAL PACKAGES		
INDEPENDENT TEACHING ACTIVITIES *in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits*		**WEEKLY TEACHNG HOURS**	**ECTS**
Lectures		4	4
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4			
COURSE TYPE *Background knowledge, Scientific expertise, General Knowledge, Skills Development*	Skills development		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION:	GREEK		
LANGUAGE OF EXAMINATION/ASSESSMENT:			
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)			

2. LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:

APPENDIX A

- *Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.*
- *Descriptive indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and*

APPENDIX B

- *Guidelines for writing Learning Outcomes*

Upon completion of this course, the student is expected to be able to:

- translate a research question into a statistical hypothesis or/and into a regression model when given a data group and the type of experimental design or sampling procedure

- apply estimation and testing methods in order to make data-based decisions
- model and investigate relationships between two or more variables within a regression framework
- apply checks for method's assumptions
- comprehend and interpret correctly the statistical significance
- interpret results correctly, effectively, and in context without relying on statistical jargon
- comprehend the notion of uncertainty which is always contained in statistical inference critique data-based claims and evaluate data-based decisions
- complete a research project that employs simple statistical inference
- use statistical software to summarize data numerically and visually, and to perform data analysis
- comply to ethical issues.

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies,	*Project planning and management*
Adapting to new situations	*Respect for diversity and multiculturalism*
Decision-making	*Environmental awareness*
Individual/Independent work	*Social, professional and ethical responsibility and sensitivity to gender issues*
Group/Team work	*Critical thinking*
Working in an international environment	*Development of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Introduction of innovative research	*(Other…….citizenship, spiritual freedom, social awareness, altruism etc.)*
	…….

1) Retrieve, analyze and synthesize data and information, with the use of necessary technologies.
2) Adapt to new situations.
3) Make decisions.
4) Work autonomously.
5) Work in teams.
6) Create new research ideas.
7) Advance free, creative and inductive thinking..

3. COURSE CONTENT

1) Statistical packages (how to use).
2) Brief overview of (a) the principles of statistical inference and (b) inference about means, proportions and variances (confidence intervals and hypothesis tests for a population mean, proportion or variance and for comparing two population means, proportions or variances; Analysis of Variance and multiple comparisons tests ; Goodness-of-fit test; Chi-Square test of independence).
3) How to apply checks for method's assumptions (tests for Normality, tests for comparing variances, normal probability plots, residuals plots, etc.).
4) Non-parametric tests (Sign test, Mann-Whitney test, Wilcoxon test, Kruskal-Wallis test, Friedman test, etc.).
5) Regression analysis (simple linear regression and correlation; multiple regression; logistic regression).
6) Diagnostic tools for checking the regression assumptions (residuals plots, etc.); data transformations.

4. TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	In-class lecturing and In computer lab
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in teaching, Laboratory Education, Communication with students*	Statistical packages usage. Educational material, updates and announcements available on the web.
COURSE DESIGN *Description of teaching techniques, practices and methods:* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art*	

Activity/ Method	Semester workload
Lectures	52 h (2,08 ECTS)
Autonomous study	48 h (1,92 ECTS)
Total contact hours and training	***100 h (4 ECTS)***

Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc. *The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.*	

STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS *Detailed description of the evaluation procedures:* *Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work,* *other……etc.* *Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.*	Written examination combined with Group or autonomous assignments

5. SUGGESTED BIBLIOGRAPHY:

1. Κούτρας, Μ. Β. και Ευαγγελάρας Χ., *Ανάλυση Παλινδρόμησης-Θεωρία και Εφαρμογές*, Εκδόσεις ΤΣΟΤΡΑΣ ΑΝ ΑΘΑΝΑΣΙΟΣ, 2018.
2. Watt, T. A., McCleery, R. H. and Hart, T., *Introduction to Statistics for Biology*, Chapman and Hall/CRC, Third Edition, 2007.
3. Zar, J. H., *Biostatistical Analysis*, Prentice Hall, Fifth Edition, 2010

6. TEACHERS:

GEORGIOS PAPADOPOULOS, ASSOC. PROFESSOR
SPYRIDON DAFNIS, ADJUNCT LECTURER