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	3645	**Semester:**	2nd
COURSE TITLE	BIOMETRY		
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		5	5
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*	*Background knowledge* / 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:

- distinguish stochastic and deterministic phenomena and experiments
- using enumeration methods and basic probability tools

- apply simple probability calculus
- recognize the practical value and importance of probabilities in the understanding of stochastic phenomena and experiments
- describe and summarize data
- translate a research question into a statistical hypothesis 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
- identify the selected method's assumptions and keep in mind that it is required to apply checks for them
- 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
- 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,
Adapting to new situations
Decision-making
Individual/Independent work
Group/Team work
Working in an international environment
Working in an interdisciplinary environment
Introduction of innovative research
Project planning and management
Respect for diversity and multiculturalism
Environmental awareness
Social, professional and ethical responsibility and sensitivity to gender issues
Critical thinking
Development of free, creative and inductive thinking
……
(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) Create new research ideas.
6) Advance free, creative and inductive thinking.

3. COURSE CONTENT

1) Statistical approach: a brief overview.
2) Useful counting rules (multiplication principle, permutations, k-permutations, combinations).
3) Practical notion of probability; basic probability tools.
4) Conditional probability (multiplication rule; law of the total probability; Bayes theorem); Independence.
5) Random variables (cumulative distribution function; discrete and continuous random variables; probability function; probability density function; mean and variance).
6) Useful discrete distributions (Bernoulli; Binomial; Poisson).
7) Useful continuous distributions (Normal; χ^2; t and F).
8) Central limit theorem.
9) The role of probability in statistics.
10) Descriptive statistics (frequency table; numerical descriptive measures; barchart; piechart; box plot; histograms).
11) Sampling distributions.
12) Estimation; point estimation (properties of an estimator); interval estimation (confidence intervals for a (difference of) population mean (s) or proportion (s));
13) Testing hypotheses for a (difference of) population mean (s) or proportion (s));
14) Analysis of variance (single-factor ANOVA; two-factor ANOVA).
15) Regression and Correlation Analysis – Simple Linear Model.
16) Goodness-of-fit test; Chi-Square test of independence.

4. TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	In-class lecturing

USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in teaching, Laboratory Education, Communication with students*	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 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.*	

Activity/ Method	Semester workload
Lectures	65 h (2,6 ECTS)
Autonomous study	60 h (2,4 ECTS)
Total contact hours and training	***125 h (5 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 of different difficulty, based on the lectures offered, containing: - Problems and/or exercises. - Comprehension questions.

5. SUGGESTED BIBLIOGRAPHY:

1. Παπαδόπουλος, Γ. Κ., *Εισαγωγή στις Πιθανότητες και τη Στατιστική*, *Εκδόσεις Gutenberg*, 2015.
2. Κουνιάς, Σ., Κολυβά-Μαχαίρα, Φ., Μπαγιάτης, Κ. και Μπόρα-Σέντα, Ε., *Εισαγωγή στη Στατιστική*, Εκδόσεις Χριστοδουλίδη, Θεσσαλονίκη.

6. TEACHERS:

GEORGIOS PAPADOPOULOS, ASSOC. PROFESSOR