COURSE OUTLINE

(1) General information

FACULTY/SCHOOL	TECHNOLOGY
DEPARTMENT	ENVIRONMENTAL SCIENCES
LEVEL OF STUDY	*Undergraduate*

COURSE UNIT CODE	NEW COURSE	**SEMESTER**	3

COURSE TITLE	ENVIRONMENTAL STATISTICS

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**	**CREDITS**
THEORETICAL BACKGROUND	3	3
LABORATORY PRACTICE	2	2
TOTAL	5	5

COURSE TYPE Background knowledge, Scientific expertise, General Knowledge, Skills Development	BACKROUND KNOWLEDGE
PREREQUISITE COURSES:	NO
LANGUAGE OF INSTRUCTION &EXAMINATION/ASSESSMENT:	GREEK
THE COURSE IS 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 (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*

The course is an introduction to statistics with an emphasis on applications in environmental sciences. Students after the successful completion of the course will gain knowledge and skills such as:
- Understanding and using the basic concepts of statistics and its relation to the basic theory of probability
- Ability to describe and analyze quantitative data through the methodology of descriptive statistics

- Analysis and understanding of the basic methods of inductive statistics and its applications.

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

- Search for, analysis and synthesis of data and information
- Decision-making
- Individual work
- Group/Team work
- Critical thinking
- Development of free, creative and inductive thinking

(3) COURSE CONTENT

1. Basic concepts of probability
2. Introduction to distributions. Distinctive distributions
3. Continuous distributions
4. Sampling distributions
5. Descriptive Statistics
6. Statistical evaluation theory
7. Statistical decision theory
8. Case control
9. Linear regression
10. Correlation and case control
11. Linear regression
12. X2 checks
13. Dispersion analysis

(4) TEACHING METHODS-ASSESSMENT

MODES OF DELIVERY **Face-to-face, in-class lecturing, distance teaching and distance learning etc.**	Face-to-face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY **Use of ICT in teaching, Laboratory Education, Communication with**	- Powerpoint presentations - Software use such as EXCEL, MINITAB, SPSS, etc. - Communication via e-mail.

	students	• E-class platform	

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		39
	Laboratory Practice - Case studies		26
	Theory study + Essay writing		60
	Course total *(25 hours of workload per credit unit)*		*125*

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.**	***The final grade is the outcome of the following evaluations:*** The evaluation in theory is done with written examinations at the end of the semester and forms the final grade at a rate of 60% (A) The evaluation in the laboratory is done in the middle and at the end of the semester and forms the final grade at a rate of 40% (B) Final Grade = 60% (A) + 40% (B)

(5) SUGGESTED BIBLIOGRAPHY:

-Suggested bibliography

- *Statistical Methods: Theory & Applications using Excel & R*, 1st Edition, Ioannidis D., Tziolas & Sons Publications, 2018.
- *Probabilities & Statistics*, 5th Edition, M. R. Spiegel, J.S. Stephens, Tziolas & Sons Publications, 2017.
- *Quantitative Ecological Methods*, Karandinos GM, University Publications of Crete, 2007.
- *Environmental Statistics: Methods and Applications*, V. Barnett, Wiley, 2004.

-Complementary bibliography
Professor's notes: Material of theory lectures and laboratory exercises, which are available through the asynchronous training platform.