COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Technology		
ACADEMIC UNIT	Department of Environmental Sciences		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**AY305**	**SEMESTER**	**3rd**
COURSE TITLE	**ENVIRONMENTAL STATISTICS**		
INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**		**CREDITS**
Teaching Hours	5		5
COURSE TYPE	General Background		
PREREQUISITE COURSES	None		
LANGUAGE OF INSTRUCTION and EXAMINATIONS	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	https://eclass.uth.gr/courses/ENV_U_117/		

(2) LEARNING OUTCOMES

Learning outcomes

The course is an introduction to statistics with emphasis on applications in Environmental Sciences.

Upon successful completion of the course, students will have acquired the necessary knowledge, skills and competence, and will be able to:

- Understand the basic concepts of statistics and their connection with basic probability theory.
- Describe and analyse quantitative data through the methodology of descriptive statistics.
- Comprehend and analyse the basic methods of inductive statistics and their applications.

General Competences

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Decision-making
- Working independently
- Team work
- Criticism and self-criticism
- Production of free, creative and inductive thinking

(3) SYLLABUS

- Basic probability concepts.
- Introduction to distributions. Discrete distributions, continuous distributions, sampling distributions.
- Descriptive statistics.
- Statistical estimation theory.
- Statistical decision theory.
- Hypothesis testing.
- Linear regression.
- Correlation.
- X^2 tests.
- Analysis of variance.

(4) TEACHING and LEARNING METHODS – EVALUATION

DELIVERY	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	• Use of PowerPoint slides • Use of software like Excel, Minitab, SPSS, etc

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- Communication with students via e-mail
- Use of asynchronous distance learning (e-class)

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<tr><td>TEACHING METHODS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>39</td></tr>
<tr><td>Laboratory practice – Case studies</td><td>26</td></tr>
<tr><td>Study and analysis of bibliography</td><td>45</td></tr>
<tr><td>Essay writing</td><td>15</td></tr>
<tr><td>Course total
(25 hours workload per credit)</td><td>125</td></tr>
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<tr><td>STUDENT PERFORMANCE EVALUATION</td><td>
Students' performance is evaluated in the Greek language. The final grade is determined by:

A written exam (at the end of the semester) that contributes 60% to the final grade, applying one or more of the following evaluation methods: Multiple choice questions, short-answer questions, problem solving.
Students' participation in laboratory practice activities and the preparation and delivery of related assignments (during the semester) that contribute 40% to the final grade.

Final Grade = 60% Exam Grade + 40% Assignments Grade
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(5) ATTACHED BIBLIOGRAPHY

- Barnett, V. (2004) *Environmental Statistics: Methods and Applications.* Chichester: John Wiley & Sons.
- Ioannidis, D. (2018) *Statistical Methods: Theory & Applications using Excel & R,* 1st Edition. Thessaloniki: TZIOLA Publications. (in Greek)
- Karandinos, G.M. (2007) *Quantitative Ecological Methods.* Heraklion: Crete University Press, Foundation for Research and Technology Hellas. (in Greek)