

MODULE DESCRIPTION

General

School	Geotechnical Sciences
Department	Forest and Natural Environment Sciences

Module Information

Title	Forest and Environmental Statistics
Course Code	C.Y.6
Level of Studies	Undergraduate
Teaching Period	Winter
Attendance Type	Compulsory
Prerequisites	Mathematics

Orientation	Weekly Hours		Year	Semester	ECTS
	Lectures	Laboratory work			
Ecology & Biodiversity Conservation	2	2	2 ^o	3 ^o	5

Faculty Instructor

Assistant Professor Dimitrios Raptis

Type of Module

- General Foundation
- Specific Foundation / Core
- Knowledge Deepening / Consolidation

Mode of Delivery

- Face to face
- Distance learning

Digital Module availability

- E-Study Guide
- Departments Website
- E-Learning

Language

	Teaching	Examination
Greek	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
English	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Erasmus

- The course is offered to exchange programme students

Learning Outcomes

Upon successful completion of the course, students will be able to design a statistical survey based on sampling principles, analyze data or databases by organizing, presenting and describing the results obtained from the research process (descriptive statistics). At the same time, they will be able to draw useful conclusions and forecasts for the population through the sample under consideration (inductive statistics). Within the course, it will be possible to correlate, analyze variance and create statistical models for predicting key variables with regression techniques.

List of General Competences

- Apply knowledge in practice
- Work autonomously
- Work in teams
- Work in an international context
- Work in an interdisciplinary team
- Respect natural environment
- Advance free, creative and causative thinking

Module Content (Syllabus)

Introduction to basic statistics: Concepts and terminology (population, sample, variables, parameters). Forest and Environmental data acquisition (sample size determination and sampling methods). Descriptive statistics (frequency, histograms, measures of central tendency, dispersion measures, coefficient of variation). Probability theory and statistics (sample space, probability distribution, sampling error). Hypothesis testing (mean values, Chi-Square goodness of fit). Correlation. Analysis of Variance. Regression. Introduction to R (CRAN) statistical software.

Keywords

Statistical Analysis, sampling, statistical significance, statistical error, statistical assumptions

Educational Material Types

- Book
- Notes
- Slide presentations
- Video lectures
- Multimedia
- Interactive exercises
- Other:

Use of Information and Communication Technologies

- Use of ICT in Course Teaching
- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students
- Use of ICT in Student Assessment

Module Organization

Please fill in the workload of each course activity

Course Activity	Workload (hours)
Lectures	26
Laboratory work	26
Field Trip/Short Individual Assignments	40
Independent Study	33
Total	125

* 1 ECTS unit corresponds to 25 hours of workload

Student Assessment Methods

- Written Exam with Multiple Choice Questions
- Written Exam with Short Answer Questions
- Written Exam with Extended Answer Questions
- Written Assignment
- Report
- Oral Exams
- Laboratory Assignment

Suggested Bibliography (Eudoxus and additional bibliography)

1. Μάτης, Κ., 2003. Δασική Βιομετρία Ι. Στατιστική. Πήγασος, Θεσσαλονίκη, σελ.598. Κωδικός Ευδόξου 22703267
2. Ρήγας Γ. και Βαγγέλας Ι., 2017. Βιομετρία. Υτορία, σελ.184. Κωδικός 68407133.
3. Σιάρδος, Γ.Κ., 2004. Μέθοδοι πολυμεταβλητής στατιστικής ανάλυσης. Ζήτη, σελ. 304.
4. Pretzsch, H., 2009. Forest Dynamics, Growth and Yield: From Measurement to Model. Springer, p. 664.
5. Robinson, A.P., Hamann, J.D., 2011. Forest Analytics with R: An Introduction. Springer, New York.