

COURSE OUTLINE

(1) GENERAL

SCHOOL	Social sciences		
ACADEMIC UNIT	Department of Sociology		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	108	SEMESTER	B
COURSE TITLE	Social statistics		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
	3	6	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	special background, specialised general knowledge, skills development		
PREREQUISITE COURSES:	No prerequisites.		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://www.soc.aegean.gr/ext-files/pm/pps/2017-108-en.pdf		

(2) LEARNING OUTCOMES

<p>Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competencies of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>The purpose of this course is to present the basic principles of Statistics in an organised and explanatory manner so that sociology students can apply them to different research questions. In particular, the introductory concepts of statistics, descriptive statistics, probability, probability distributions and inferential statistics are presented. Theoretical distributions are studied, and the study of independent random variables are emphasised. The methods for drawing statistical conclusions about the parameters characterising a population, based on a random sample are formulated and developed. Other methods of statistical inference considered are those of Hypothesis Testing. Finally, simple linear regression and linear correlation are presented.</p> <p>Learning outcomes</p> <ol style="list-style-type: none"> 1. Classification, presentation, analysis and interpretation of statistical data systematically to arrive at logically consistent conclusions about the behaviour of variables.

2. Develop basic statistical skills so the student can apply them to real social issues.
3. Familiarise with hypothesis testing methods
4. Familiarise and understand the linear model application and other techniques (Factor analysis, Cluster analysis) used in the primary data analysis.
5. Familiarisation and understanding of the use of time series analysis (Time series analysis).
6. Using and learning the statistical package SPSS

Learning outcomes

At the end of this course, the student will be able to:

1. Organise the data into frequency distributions and present them in diagrams
2. Search and analyse data and information using the necessary information
3. Apply basic descriptive statistical measures to grouped and ungrouped data
4. Calculate confidence intervals for the population mean and proportion and determines the sample size
5. Apply hypothesis tests for the population mean and proportion
1. Make use of simple linear regression and other statistical techniques that will be presented during the semester

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>
<i>Production of new research ideas</i>	<i>Others...</i>

Search for, analysis and synthesis of data and information, with the use of the necessary technology
 Adapting to new situations
 Decision-making
 Working independently
 Team work
 Working in an international environment
 Working in an interdisciplinary environment

(3) SYLLABUS

1rst & 2th Lecture	DESCRIPTIVES STATISTICS
	<ol style="list-style-type: none"> 1. Introductory concepts of statistics. 2. Descriptive statistics and statistical measures. 3. Statistical units, statistical features and variables 4. Frequency distribution 5. Frequencies 6. Random variables
3th Lecture	DATA ANALYSIS: CLASSIFICATION AND GROUPING

1. Tables and types of tables
2. Basic elements of a statistical table
3. Construction of frequency distribution and cumulative frequencies.
4. Crosstabulations
5. Time series
6. Statistical charts

4th Lecture

DISTRIBUTIONS

1. Discrete distributions
2. Continuous distributions
3. Normal distribution
 - a. Concept, properties and characteristics of the normal distribution
 - b. The importance of the normal distribution in statistical analysis

5th Lecture

CONFIDENCE INTERVALS

1. Central Limit Theorem
2. Symmetrical confidence intervals for the population mean
3. Symmetric confidence intervals for the population proportion
4. Calculation of necessary sample size

6th Lecture

HYPOTHESIS TESTING

1. Hypothesis testing of the population mean
2. Hypothesis Tests for Non-Normal Population Means Hypothesis Tests for Population Percentages (Proportions)
3. Hypothesis testing about the mean in two populations
4. Hypothesis testing about differences in proportions in two populations

7th Lecture

ANALYSIS OF GROUPED DATA

1. Chi-square testing
2. goodness of fit test

8th Lecture

LINEAR REGRESSION

1. Concept and calculation of correlation coefficient
2. Linear regression
3. Least squares line

9th Lecture

LINEAR REGRESSION

Linear regression

10th Lecture

ANALYSIS OF VARIANCE

One way anova

11th Lecture

TIME SERIES

1. The components of the development of a chronological series
2. Forecasts with smoothing techniques (with mobile means and weighted mobile average).
3. Forecasts based on the trend of the time series

12th Lecture

PRACTICAL APPLICATIONS

Discussion of other statistical techniques, Practical applications

13th Lecture

REVISION

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face lectures and discussions. Active participation in the course and implementation of participatory teaching and learning														
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Statistical software (SPSS, excel) will be used. The university's online platform will be used to communicate with students, provide educational material, and provide student feedback. At the same time, the teacher will use electronic platforms to conduct polls during the course to achieve specific learning sub-objectives.														
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<table border="1"> <thead> <tr> <th style="background-color: #d3d3d3;">Activity</th> <th style="background-color: #d3d3d3;">Semester workload</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>39</td> </tr> <tr> <td>Applications from the teacher / interactive teaching</td> <td>15</td> </tr> <tr> <td>Applications by the students in the classroom under the guidance of the teacher</td> <td>20</td> </tr> <tr> <td>Software applications</td> <td>20</td> </tr> <tr> <td>Independent study</td> <td>86</td> </tr> <tr> <td>Course total</td> <td>180 hours (6 ECTS)</td> </tr> </tbody> </table>	Activity	Semester workload	Lectures	39	Applications from the teacher / interactive teaching	15	Applications by the students in the classroom under the guidance of the teacher	20	Software applications	20	Independent study	86	Course total	180 hours (6 ECTS)
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STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<ol style="list-style-type: none"> Attendance and participation in lectures (10%) Multiple-choice midterm assessment (test) (30%) Written exam at the end of the semester (60%) <p>The exams will be 20 multiple choice questions and 2 exercises, one of which must be solved. Students with demonstrated learning difficulties are provided with the support provided by legislation, academic practice and the nature of the course. Personal support will be provided to students on course issues by appointment or during office hours.</p>														

(5) ATTACHED BIBLIOGRAPHY

Textbooks

- Ρούσος, Π. και Τσαούσης Γ. 2020. Στατιστική εφαρμοσμένη στις κοινωνικές επιστήμες με τη χρήση του SPSS και του R. Gutenberg, Αθήνα
- Δημητριάδης, Ε. (2016), Στατιστική επιχειρήσεων με εφαρμογές σε SPSS και LISREL, Κριτική, Αθήνα

Suggested bibliography:

- Barbara Illowsky, De Anza Susan Dean, Introductory Statistics, <https://openstax.org/details/books/introductory-statistics>
- Stockemer, D., (2019), Quantitative Methods for the Social Sciences: A Practical Introduction with Examples in SPSS and Stata, Springer.

3. Field, A. (2016), *Η διερεύνηση της στατιστικής με τη χρήση του SPSS της IBM*, 1^η εκδ, Προπομπός
4. Miah, A. Q (2016). *Applied Statistics for Social and Management Sciences*, Springer
5. Ho, R., (2018), *Understanding Statistics for the Social Sciences with IBM SPSS*, CRC Press Taylor & Francis Group