COURSE OUTLINE

(1) GENERAL

SCHOLL	Economics and Public Administration
ACADEMIC UNIT	Economic and Regional Development
LEVEL OF STUDIES	Postgraduate
COURSE CODE	8026 **SEMESTER** E'
COURSE TITLE	**APPLIED STATISTICS**

INDEPENDENT TEACHING ACTIVITIES *If credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole course, give the weekly teaching hours and the total credits.*	WEEKLY TEACHING HOURS	CREDITS
	4	6
Add rows if necessary. The teaching organisation and methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	General backround, scientific area, skills development
PREREQUISITE COURSES:	Statistics I
LANGUAGE OF INSTRUCTION and EXAMINATIONS :	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	https://openeclass.panteion.gr/courses/TMI281/

(2) LEARNING OUTCOMES

Learning outcomes
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.
Consult Appendix A
• Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
• Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
• Guidelines for Writing Learning Outcomes

The purpose of the course is to introduce the student to statistical modeling using statistical tools on a computer. The course aims to provide the student with the necessary knowledge to understand the theoretical background of quantitative methods and learn their application in economic & financial science. The course refers to data handling, eg. file generation, recoding, transformations, unit selection, estimating linear and non-linear multiple regression models, variable selection, diagnostic methods, etc. Particular importance is given to the understanding of the data to be analyzed and the relationship of the data with the appropriate technical analysis.

Upon completion of the course, students will know in depth the basic quantitative methods of statistical analysis. The aim of the lectures is the correct use of quantitative methods by the graduates in their work and their introduction to research

- Research design development
- Decision making
- Work in an interdisciplinary environment
- Generating new research ideas
- Search, analysis and synthesis of data and information, using the necessary technologies
- Autonomous work
- Promotion of free, creative and inductive thinking

(3) SYLLABUS

The main modules of the course are the following:

- File creation, transformations, selection of units and measures
- Estimation of linear and non-linear multiple regression models
- Selection of variables
- Diagnostic methods
- Understanding the data to be analyzed
- Big data analysis
- Analysis of particular data, e.g. satellite information
- Big data, transformations for information mining
- Predictions models

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face Dinstance learning in case of emergency
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, and communication with students*	• Use of presentation and spreadsheet software as well as statistical programs for example, Eviews, R-project. • Email communication with students • Support of the learning process using the eclass electronic platform.

TEACHING METHODS *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, projects, 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.*	*Activity*	*Semester Workload*
	Lectures	30
	Study and analysis of bibliography	25
	Data Collection and Elaboration	25
	Essays	30
	Course Total (25 hours per ECTS)	**110**

STUDENT PERFORMANCE EVALUATION *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.*	The evaluation of students is done through: • Delivery and presentation of essay. Her grade will be 40% of the final grade. • Final exam (which in exceptional circumstances takes place electronically). Her grade will be 60% of the final grade (Participation only in the final exam results in a maximum grade of 6).

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1.   Berenson L. Mark, Levine M. David, Szabat A. Kathryn (2019). Βασικές Αρχές Στατιστικής για Επιχειρήσεις-Έννοιες και Εφαρμογές, Broken Hills.

2.   Ντεγιαννάκης Σταύρος (2014). Εφαρμογές Οικονομετρίας με τη Χρήση του Πακέτου EVIEWS, Πανεπιστημιακές Σημειώσεις, Πάντειο Πανεπιστήμιο, Τμήμα Οικονομικής και Περιφερειακής Ανάπτυξης, Πρόγραμμα Μεταπτυχιακών Σπουδών, Αθήνα.

3.   Degiannakis, Stavros and Evdokia Xekalaki (2010). ARCH Models for Financial Applications, Wiley, New York.

4.   Greene, Willian H. (2012). Econometric Analysis, Prentice Hall, New York.

5.   Hamilton, J.D. (1994). Time Series Analysis, Princeton University Press, New Jersey.

6.   Δημέλη Σοφία (2013). Σύγχρονες Μέθοδοι Ανάλυσης Χρονολογικών Σειρών. Εκδόσεις ΟΠΑ, Αθήνα.

7.   Χρήστου Γεώργιος (2008). Εισαγωγή στην Οικονομετρία (Τόμοι Α&Β), Gutenberg, Αθήνα.

8.   Degiannakis, S., Filis, G. and H. Hassani (2018). Forecasting implied volatility indices worldwide: A new approach, Journal of Empirical Finance 46, 111-129.

9.   Degiannakis, S. and Filis, G (2018). Forecasting oil prices: High-frequency financial data are indeed useful, Energy Economics, 76, 388-402.

10.   Degiannakis, S. and Filis, G (2017). Forecasting oil price realized volatility using information channels from other asset classes, Journal of International Money and Finance, 76, 28-49.