

## COURSE OUTLINE

### 1. GENERAL

SCHOOL	Social, Political and Economic Sciences		
SECTION	Economics		
LEVEL OF STUDIES	Undergraduate – Level 6		
COURSE CODE	NK502	SEMESTER OF STUDIES	5th
COURSE TITLE	Econometrics I		
TEACHING ACTIVITIES	WEEKLY HOURS PER WEEK	ECDS CREDITS	
	4	6	
COURSE TYPE	Background		
PREREQUISITES:	Mathematics 1 and 2, Statistics 1 and 2		
TEACHING & EXAMINATION LANGUAGE:	Greek		
COURSE OFFERED TO ERASMUS STUDENTS	Yes (assignment examined)		
COURSE URL:	<a href="https://econ.duth.gr/en/courses/statistics-ii/">https://econ.duth.gr/en/courses/statistics-ii/</a>		

### 2. LEARNING OUTCOMES

Learning Outcomes
<p>The course of Econometrics I aims at the students' understanding of the tools for assessing the causal impact using either observational data (non-experimental data) and data derived from non-perfect experiments from the real world. The course analyzes concepts such as the classical linear model, the method of minimum squares, the method of maximum probability, the control of hypotheses, etc. Examples / empirical applications from the entire spectrum of economic analysis are given.</p>
<p><b>Relationship of the course with the subject of the Department</b></p> <p>The Department of Economics aims at the study and promotion of economics. This objective is served by all those theoretical and quantitative tools that allow the understanding of the economic environment based on the possibility of:</p> <ul style="list-style-type: none"> <li>analyze the variables that determine the behavior and decisions of households, businesses and economic policy makers</li> <li>acquire the ability to understand the methodological approaches of economics</li> <li>acquire scientific and methodological knowledge in specialized fields of statistics</li> </ul>



- learn how to use empirical methodological tools of economics and business administration to analyze complex problems, the economy and businesses
- learn to search for and use scientific sources and to verify or reject scientific proposals
- are prepared using case studies for her professional career in the private or public sector

#### General Skills

Search, analyze, compose and present data and information, using the necessary statistical tools

Decision-making

Promoting free, creative and inductive thinking

Ability to understand complex problems related to the field of Econometrics

### 3. COURSE CONTENT

- Introduction to Econometrics
- Simple Regression model
- Multivariate Regression model
- Non-linear regression
- Multicollinearity, Autocorrelation and heteroskedasticity.

The structure of the teaching is as follows:

#### First week

Introduction to Econometrics, analysis of economic questions, causation, data sources and types (cross-sectional, time series, panel).

#### Second Week

Review of basic concepts of Descriptive Statistics and Probabilities (expected values, distributions, probabilistic calculus, sampling). Review of basic concepts of Inductive Statistics (hypothesis checks, confidence intervals, diagrams).

#### Third Week

Linear Regression with an independent variable (model, hypotheses, adjustment measures).

#### Fourth Week

Multiple regression (model, hypotheses, adaptation measures).

#### Thursday - Sixth Week

Nonlinear regression models (polynomials, logarithms, interactions).

#### Seventh Week

Evaluation of studies based on multivariate regressions.

#### Eighth Week



Multicollinearity. Description, consequences to estimators, identification, treatment.

**Ninth Week**

Heteroskedasticity. Description, consequences to estimators, identification, treatment.

**Tenth - Eleventh Week**

Autocorrelation. Description, consequences to estimators, identification, treatment.

**Twelfth- Thirteenth Week**

Summary –Exercises – Connection with economic theory with the analysis of econometric applications and the study of cases of use of the theory.

**4. TEACHING AND LEARNING METHODS - EVALUATION**

<b>METHOD OF DELIVERY</b>	Face to face	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	Use of remote training methods in teaching and communication with students	
<b>TEACHING ORGANIZATION</b>	<b>Activity</b>	<b>Semester Workload</b>
	LECTURES	52 HOURS
	INDEPENDENT STUDY	98 HOURS
	<b>TOTAL COURSE</b>	<b>150 HOURS</b>
<b>STUDENT EVALUATION</b>	<i>Mid-term exam (online examination on a specific date within the semester) (20%)</i> <i>Assignments (online delivery on a specific date within the semester) (10%)</i> <i>Final examination (70%)</i>	

**5. RECOMMENDED BIBLIOGRAPHY**

- Stock J. and Watson M. (2018) Introduction to Econometrics, Gutenberg Editions, Athens.
- Gujarati D. and Porter D. (2018) Econometrics, Principles and Applications, Tziola Publications, Thessaloniki.
- Halkos, G.E. (2019) Econometrics: Theory and Practice, Disigma Publications, Thessaloniki.
- Wooldridge, Jeffrey (2013) Introduction to econometrics : A modern approach, Papazisis Publications, Athens

