

DIPLOMA IN EUROPEAN BUSINESS AND ECONOMICS

Module Description
STATISTICAL METHODS IN ECONOMICS AND BUSINESS

Total contact hours	45
ECTS	5 (6 UC credits)
Taught by	Prof. Dr. José María Sarabia Alegría–Coordinator- Prof. Dr. Marta Pascual Sáez
Learning goals related to	<p>Technical Competence: Statistical methods in Business and Economics introduce the student to statistical theory and methods. In particular, equips the student with a range of statistical techniques and reinforce the student’s ability to solve statistical problems related with business and economics.</p> <p>Methodological Competence: The objective of this module is to broad the knowledge on statistical measurements of economic phenomena and statistical methods. This undergraduate course includes the following aspects: Probability and statistical inference. Point and interval estimation. The maximum likelihood method. Hypothesis testing. Likelihood-ratio tests and Bayesian methods. Nonparametric methods. Analysis of variance, regression analysis and correlation. Chi-square goodness of fit tests.</p> <p>Social Competence: Students are expected to attend class meetings, specific seminars and compose a term paper or a group project.</p> <p>Personal Skills: Students are introduced to and gain experience in using a variety of computational tools that are useful for economic analysis.</p>
Content	<p>Programme Chapter 1: Introduction to statistical inference Chapter 2: Point estimation of parameters Chapter 3: Interval estimation Chapter 4: Hypothesis testing Chapter 5: Chi-square goodness of fit tests Chapter 6: The classical linear regression model Chapter 7: Analysis of variance</p>
Teaching material	<p>▪ Core Texts:</p> <p>- Mendenhall, William; Sincich, T. (1996). <i>A Second Course in Statistics: Regression Analysis</i>. Upper Saddle River, New Jersey: Prentice Hall.</p> <p>- Mendenhall, William; Wackerly, D.D., Scheaffer, R.L. (1990). <i>Mathematical Statistics with Applications</i>. Boston: PWS-Kent Pub. Co., 4th edition.</p> <p>- Mendenhall, William; Reinmuth, J.W.; Beaver, R. (1982). <i>Statistics for Management and Economics</i>. Boston: PWS-Kent Pub. Co., 6th edition.</p>

	<ul style="list-style-type: none"> ▪ Additional material: Students should have access to a software package that can perform basic statistical analysis. Thus, computers are used throughout the course.
Teaching methods	<ul style="list-style-type: none"> ▪ At the beginning of each week, participants receive the relevant material, in addition to answers to exercises from the previous session. During the week, participants are expected to go over the course materials and work through exercises. Discussion among participants is encouraged. ▪ Also, lectures and mainly active form of learning via the composition of a term paper or a group project under the close supervision of the lecturer.
Assessment	<p>The final examination consists of:</p> <ul style="list-style-type: none"> - Tests and practical exercises taken during the study period. - Final written essay demonstrating the ability of the student to analyse a problem related with Economics and Business using statistical methods. The students choose among a list of given topics. They can also propose their own topic, which has to be agreed on by the professor. The essay should include a based economic background of the problem analyzed, processing of data and interpretation of statistical analysis results.

Workload	Contact hours:	45
	Preparation and follow up of lectures:	30
	Student's paper:	20
	Presentations:	20
	Preparation for a final written assignment:	10
International aspects	<ul style="list-style-type: none"> ▪ Use of international examples and teaching material. Several research seminars and workshops with guest speakers from other abroad universities will provide an important forum for discussion. 	
Cross-cultural reference	<ul style="list-style-type: none"> ▪ Participants of international origin. 	
Course language	<ul style="list-style-type: none"> ▪ English 	
Integration of business partners	<ul style="list-style-type: none"> ▪ In class discussions led by the instructor, you can post questions, seek clarification, and interact with your fellow international students and the instructor. 	
Particularities	<ul style="list-style-type: none"> ▪ This course is recommended for students of social sciences and applied mathematics and statistics who want a broad background in statistical methodology. Some previous experience with statistics is recommended but not required. 	