

Computer Lab in Economics Master in International Economics

Inmaculada Álvarez Ayuso

Office 314 (Módulo I) www.uam.es/inmaculada.alvarez

E-mail: inmaculada.alvarez@uam.es

Basic Characteristics

■ Prerequisites:

This course is for graduate students in Economics. Basic knowledge of Mathematics, Statistics and Econometrics, at the undergraduate level, is required. The teaching language is English.

■ Attendance:

Regular attendance, above 80% of the sessions, is required.

Objectives

- The main objective of the Computer Lab in Economics is to provide the student with the necessary tools for solving mathematical problems, applying statistics and econometrics techniques, and simulating economic models. At the end of the course, the student should have achieved several skills related to: being able to implement an econometric analysis, transforming a theoretical economic model into a computable one, being able to use leading econometric and computing software.



Contents

Part 1: MATLAB

- **Topic 1: Introduction to MATLAB**

Introduction to MATLAB and basic concepts in computer programming.

- **Topic 2: Optimization in MATLAB**

Optimization principles and applications with MATLAB.

- **Topic 3: Mathematical problems solving with MATLAB**

Programming and solving of mathematical problems in MATLAB.

- **Topic 4: Computing economic models with MATLAB**

Programming, simulation and solving economic models by iteration and optimization.



Contents

Part 2: SPSS

- **Topic 5: Introduction to statistical analysis with SPSS**

Introduction to SPSS

Descriptive and exploratory analysis

Part 3: Stata

- **Topic 6: Introduction to Stata**

Overview: data management and graphs

Statistical analysis

- **Topic 7: Econometric analysis with Stata**

Cross section methods

Time series analysis

Panel data models

Advanced topics

Teaching Methodology

- The course is essentially practical, accompanied by explanations of theoretical concepts when they are needed. Lessons consist of teaching the use of various leading software (SPSS, MATLAB, Stata) by introducing their foundations and solving many practical exercises.

Evaluation

- Participation/attendance: it will represent no more than 10% of the final grade. Non attending to a minimum of lessons (80%) implies to fail the course.
- Final projects (70%): SPSS (10%), MATLAB (20%), Stata (40%)
- Exam with test questions (20%)
- Homework-auto evaluation available in Moodle

Calendar

Weeks (Mondays) 15:30-17:00h,17:15-18:45h	Contents
Session 1 (23 September)	SPSS
Sessions 2 and 3 (30 September, 7 October)	MATLAB
Sessions 5 and 6 (14, 21,28 October)	Stata
16 December	Final evaluation