UNIVERSIDAD
COMPLUTENSE
MADRID

Bachelor's Degree

Faculty of Statistical Studies

Applied Statistics

Syllabus

TYPE OF SUBJECT	ECTS
Core Studies	60
Compulsory	150
Elective	18 *
Bachelor Thesis	12
Total	**240**

* Including 6 ECTS of Internships.

YEAR ONE	ECTS
Data Description and Exploration	6
Economic Statistics	6
Hazard and Probability	6
Mathematical Methods for Statistics I	6
Mathematical Methods for Statistics II	6
Mathematical Methods for Statistics III	6
Programming I	6
Programming II	6
Sources and Techniques of Information Collection in Social and Market Research	6
Statistical Software I	6

YEAR TWO	ECTS
Computer Mathematics	6
Databases: Design and Management	6
Estimation I	6
Estimation II	6
Optimisation Techniques	6
Probability and Dynamic Processes	6
Statistical Software II	6
Statistical System and Economic Indicators	6
Study and Data Debugging	6
One Elective Subject	6

YEAR THREE	ECTS
Advanced Methods of Experimental Design	6
Advanced Sampling Design and Official Statistics	6
Design of Experiments	6
Linear Forecasting Methods	6
Marketing Research and Market Analysis: Procedures and Applications	6
Multivariate Statistical Techniques I	6
Multivariate Statistical Techniques II	6
Sampling Design	6
Simulation and Waiting Lines	6
Statistical Applications in Industry	6

YEAR FOUR	ECTS
Advanced Forecasting Techniques	6
Econometric Methods in Economics and Finance	6
Segmentation and Survey Processing Techniques	6
Six Sigma Methodology for Quality Improvement	6
Statistical Applications in Health Sciences	6
Time Series	6
Two Elective Subjects (may include External Internships)	12
Bachelor Thesis	12

ELECTIVE SUBJECTS	ECTS
Algorithm Workshop	6
Demography	6
Economic Environment of the Company	6
English for Specific Purposes	6
External Internships	6
Fundamentals of Business and Marketing	6
Introduction to Applied Economics	6

PARTICIPATION CREDITS	ECTS
Any course	6

Knowledge acquired

- Appropriate sources of information for statistical work.
- Preparation and filtering of the available information for subsequent processing.
- Selection of the sample design and sample size according to the characteristics of the population to be studied.
- Identification and organisation of the relevant information in a real problem and design and planning of a statistical study for its resolution. Developing and constructing appropriate statistical and validation models.
- Behaviour patterns in the data, situations with random behaviour.
- Usefulness of estimation and inference on the population studied.
- Analysis of qualitative and quantitative data through the application of statistical methods and techniques. Interpretation of the results of statistical work.
- Solving statistical and operational research problems, facilitating decision-making.
- Drawing conclusions from statistical work and preparing technical and dissemination reports.
- Drawing up forecasts and scenarios.
- Managing and exploiting databases of any volume.
- Preparing surveys and optimising their design.
- Statistical tools for quality control and improvement.
- Design, programming, and implementation of statistical and operational research packages, both generic and specific.
- Programmable statistical software and handling of at least two of those most widely used in the corporate world.
- Understanding and handling basic algebra and calculus tools.
- Assessing the importance of statistics and its correct use in specific problems in areas such as social sciences, health, or engineering.

Professional opportunities

- Engineering: control processes, data mining, communication networks, design of experiments, reliability, logistics, inventory management, expert systems, pattern recognition, etc.
- Economics and business: productive sectors, labour market, econometrics, economic analysis, market research, marketing, financial markets, risk control and assessment, etc.
- Health: epidemiology, biostatistics, genomic statistics, bioinformatics, clinical trials, biomedical signal analysis, etc.
- Politics and society: demography, political and electoral studies, social research, international relations, integration studies, justice, etc.
- Earth sciences and environment: monitoring of the climate change policies, climatology, seismology, genetic selection of plants and animals, crop estimation, marine sciences, etc.
- Other areas of possible application: literature, linguistics, standard of living and quality of life, media studies, services, criminalistics, sports, etc.
- Public administration, teaching and research.

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UCM Degrees

Bachelor's Degree Applied Statistics

Field of Knowledge: Mathematics and Statistics

Faculty of Statistical Studies

Campus de Moncloa

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