COURSE DATA

Data Subject	
Code	35059
Name	Statistics
Cycle	Grade
ECTS Credits	6.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
1302 - Degree in Criminology	Faculty of Law	1	First term
1923 - D.D. in Law-Criminology	Faculty of Law	1	First term

Subject-matter

Degree	Subject-matter	Character
1302 - Degree in Criminology	5 - Statistics	Basic Training
1923 - D.D. in Law-Criminology	1 - Year 1 compulsory subjects	Obligatory

Coordination

Name	Department
MARTI CUNQUERO, RAFAEL	130 - Statistics and Operational Research

SUMMARY

This Statistics course belongs to the block of Basic Formation. It is given in the first semester of the first year, so that its practical contents can be used in subsequent courses, especially in Methods of Research in Social Sciences I and II, given in the second and third semesters, respectively.

The course is an introduction to Statistical Data Analysis, covering the descriptive analysis of data as well as the basic procedures of statistical inference: estimation and hypothesis testing. The course thus prepares students for the analysis of the many data types that can be found in all kinds of reports or studies in the various areas of Criminology.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

OUTCOMES

1302 - Degree in Criminology

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LEARNING OUTCOMES

This course is oriented for the students to obtain the following skills:

- To know formally correct definitions of the basic concepts of statistical analysis
- To be able to develop and interpret statistics with variables such as gender, age, etc… , by applying the techniques of descriptive data analysis
- To know the more common probability distributions, both discrete and continuous
- To know the basic procedures of Statistical Inference: parameter estimation and hypothesis testing
- To be able to model real situations using mathematical formulations
- To solve basic statistical problems in Criminology by applying the appropriate inference methods in each case
- To be able to reach conclusions based on the data

DESCRIPTION OF CONTENTS

1. Exploratory data analysis

1.1.- Populations and samples
1.2.- Types of variables and their inter-relationships
1.3.- Graphical description of variables
1.4.- Numerical description of variables
1.5.- Description of populations using probabilistic models

2. Analysis of the relationship between two variables

2.1.- Simple linear regression: the least-squares regression line
2.2.- The correlation coefficient
2.3.- Multiple regression

3. Inference in one population

3.1.-.Population parameters
3.2.- Estimation of the population mean. Confidence interval
3.3.- Hypothesis testing concerning the population mean

4. Two-sample analysis

4.1.- Dependent samples
4.1.1.- Experiment designs using dependent observations
4.1.2.- t-test and confidence interval
4.1.3.- Conditions for the applicability of methods
4.2.- Independent samples
4.2.1.- Experiment designs using independent observations
4.2.2.- t-test and confidence interval
4.2.3.- Conditions for the applicability of methods

5. Analysis of two or more independent samples

5.1.- Experiment designs with k independent samples
5.2.- Analysis of Variance and a posteriori comparisons
5.3.- Conditions for the applicability of methods

6. Categorical data analysis

6.1.- Analysis of proportions
6.2.- Goodness-of-Fit analysis
6.3.- Analysis of contingency tables

WORKLOAD

ACTIVITY	Hours	% To be attended
Theoretical and practical classes	60,00	100
Attendance at events and external activities	5,00	0
Development of individual work	15,00	0
Study and independent work	45,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	15,00	0
TOTAL	**150,00**	

TEACHING METHODOLOGY

Face to face teaching is structured into two weekly sessions of 2 hours, one theoretical and one practical session in the computer laboratory. The theoretical classes are devoted to the introduction and discussion of the theoretical contents. Starting from the teacher's initial explanation of the concepts, the student progresses in the understanding of the concepts by group discussion and problem solving. In the practical classes, a statistical calculation program is introduced and used for solving problems of interest in Criminology.

Every week the student has to solve and hand in an exercise set by the teacher, related to the concepts introduced in that week's sessions. In the following week's practical class, the exercise is discussed in order to provide the student with feedback on the work done.

EVALUATION

A 70% of the grade corresponds to a final written theoretical-practical exam in which the students will have to answer questions, solve problems and interpret results presented in the standard format of the statistical software used on the course. If the student does not obtain a minimum of 5 points (out of 10) in this part, he or she did not pass the course.

The remaining 30% of the final grade corresponds to the solution of problems in practical sessions and the submission of the exercises set as part of the student's own work. **This grade from the practical assignments is kept in the two calls of the course**.

REFERENCES

Basic

- Bachman, R. y Paternoster, R. (2008) Statistical Methods for Criminology and Criminal Justice. McGraw-Hill, 3ª Ed.
- Fox, J.A., Levin, J. y Forde, D.R. (2008) Elementary Statistics in Criminal Justice Research. Pearson, 3ª Ed.
- Miethe, T.D. (2007) Simple Statistics. Applications in Criminology and Criminal Justice. Oxford University Press.
- Walker J.T. y Maddan, S. (2009) Statistics in Criminology and Criminal Justice. Jones and Bartlett Publishers, 3ª Ed.
- Champion, D.J. y Hartley, R.D. (2008) Statistic for Criminology and Criminal Justice. Pearson, 3ª Ed.

Additional

- Peña, D. y Romo, J. (1997) Introducción a la Estadística para las Ciencias Sociales. McGraw-Hill, 1ª Edición.
- Mullor, R y Fajardo, Mª D. Manual práctico de estadística aplicada a las ciencias sociales, Ariel Practicum, 2000
- Glenberg, A.M. y Andrzejewski, M.E. (2008) Learning from data. An introduction to statistical reasoning. Lawrence Erlbaum Associates, 3ª Ed.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

BLENDED TEACHING MODEL:

If academic authorities so state, this subject will be adapted to the blended teaching model established by the Faculty of Law, under which students will attend in-person theoretical-practical classes in alternate weeks. To this end, the Secretariat of the Faculty will divide the group into as many subgroups as necessary, and lectures will take place for a subgroup in the classroom at the schedule established for the subject according to the calendar established by the Faculty, whereas the others will attend the class, as a priority, through synchronous VIDEOCONFERENCE.

The contents, volume of work and assessment remain in the terms initially foreseen in the academic guide.

NON-PRESENTIAL TEACHING MODEL:

If academic authorities declare the change into non-presential teaching, this subject will be taught to all students under the same conditions as those indicated for the distance teaching of the blended system.

The contents, volume of work and evaluation remain in the terms initially foreseen in the academic guide.