COURSE DATA

DATA SUBJECT

Code: 33801
Name: Statistics
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1318 - Degree in Geography and the Environment	Facultat de Geografia i Història	2	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1318 - Degree in Geography and the Environment	Statistics	BASIC

COORDINATION

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SUMMARY

The subject transmits to the student the basic concepts of statistics applied to geographic problems so that they understand its foundations and can, therefore, decide the techniques that best suit specific problems and thus be able to continue learning. Autonomous expanding knowledge on the subject.

The student must select and apply the most convenient statistical methods for the analysis of geographic information. In addition, she must use, understand and interpret the usual statistical software. Geographic information and its sources. Descriptive statistics and construction of indicators. Statistical inference. The normal distribution. Work with samples. Hypothesis contrast. Comparisons, relations and regressions.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

It is convenient to have some experience in handling the Excel spreadsheet (tables, formulas and graphs) to carry out the practices.

Since the Virtual Classroom will be used as the main element of permanent communication outside the classroom between the teacher and the students, it will be necessary to know how to use it.

COMPETENCES / LEARNING OUTCOMES

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Be able to communicate effectively with non-experts.

Be able to learn independently and show creativity, initiative and entrepreneurship. Be able to resolve unforeseen situations.

Be able to produce statistical information. Know how to use statistical software.

Be able to work independently.

Be able to work in interdisciplinary teams.

Have capacity for analysis and synthesis.

Have oral and written communication skills in one's own language and in a foreign language.

Learn about geographical history and thinking.

Learn about the time and space dimensions in the explanation of social, territorial and environmental processes.

Show commitment to the values of gender equality, interculturality, equal opportunities, universal access for people with disabilities, the culture of peace, democratic values and solidarity.

Show motivation for quality, responsibility and intellectual honesty.

DESCRIPTION OF CONTENTS

1. Statistics in geography: positive feedback.

1.1. What is statistics?
1.2. What is the origin of statistics?
1.3. What is the purpose of statistics?
1.4. What are the main branches of statistics and the steps of the scientific method?
1.5. The role of statistics in geography: sources of information
1.6. Data and metadata

2. Basic principles of statistics: from the organization and representation of data to sampling and calculation of samples.

2.1. Variables
2.2. Comparison
2.3. Frequency distribution
2.4. Types of sampling
2.5. Sample calculation
2.6. Graphical representation of values

3. Descriptive statistics: measures of position, dispersion, shape and concentration.

3.1. Descriptive statistics: one-dimensional analysis
3.2. Measures of central tendency: mode, median and mean
3.3. Measures of group position: quantiles and minimum and maximum
3.4. Measures of dispersion or absolute variation
3.5. Measures of shape
3.6. Measures of concentration
3.7. Construction of indicators

4. Inferential statistics: probability, relations and significance.

4.1. What is inferential statistics?
4.2. Random variables: discrete or continuous
4.3. Probability distributions
4.4. Normalized scores or z scores
4.5. Inferential statistics techniques

5. Spatial statistics: the space and time of processes.

5.1. Centrographic measurements
5.2. Statistical analysis of lines
5.3. Analysis of point patterns
5.4. Spatial autocorrelation
5.5. Interpolation

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00

Other activities	15,00
Computer classroom practice	15,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	0,00
Preparation of lessons	70,00
Preparation for assessment activities	20,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

Utilization of IT basic tools for the learning of the statistics. Work in class (theory) and at laboratory of computer science.

The students will have to realize out of the hours of class practical exercises of application of the acquired knowledge and follow the examples that will explain in class. The basic necessary information will be facilitated in class or throught the Virtual Classroom.

EVALUATION

The grade obtained will be obtained from the following weighting of the various evaluable elements:

a) Exam: 60%*

b) Dossier of practical exercises: 25% For the accounting of this item it will be a necessary conditio exception - to have delivered the practices inexcusably and without any exception through the Virtual Cla within the established deadlines. As well as attendance at least 80% of the practical classes of the subject.

c) Complementary activities: 15% of the final grade.

** Regarding the evaluation of the exam, it is necessary to obtain a minimum grade of 4 out of 10, to consider and ad*

obtained in the practice dossier and in the complementary activities, which must have a minimum rating of 4.

In the case of students who, in the second call, have decided to opt for the exam to represent 100% of their final
necessary condition that they obtain a minimum grade of 5 out of 10 in the exam.

REFERENCES

- Serrano, J. J. (2022). La estadística aplicada a la Geografía y al Medio Ambiente: un recorrido teórico. Tirant lo Blanch.

- Serrano, J.J. (2022). La estadística aplicada a la Geografía y al Medio Ambiente: casos prácticos. Tirant lo Blanch.

- Rogerson, P. A. (2019). Statistical methods for geography: a students guide. Sage.

- Mullor, R. (2017). Estadística Básica I. Introducción a la Estadística. Publicacions Universitat d'Alacant.

- López, J. y López, M (2016). Estadística descriptiva test y ejercicios. UNED.

- Verdoy, P.J., Beltrán M.J. y Peris, Mª J. (2015). Problemas Resultados de Estadística Descriptiva para Ciencias Sociales. Publiacions de la Universitat Jaume I.

- González, J. A. (2009). Manual Básico SPSS. Manual de introducción a SPSS. Universidad de Talca.

- Díaz, M. (2019). Estadística inferencial aplicada. Editorial Universidad del Norte.

- Crespo, F. (2017). Métodos estadísticos: ejercicios resueltos y teoría. Editorial Universitat Politècnica de València.

- Cabrero, Y. y García, A. (2015). Análisis estadístico de datos espaciales con QGIS y R. UNED.