28313 - Geography: data and information processing

Información del Plan Docente

Academic Year	2016/17
Academic center	103 - Facultad de Filosofía y Letras
Degree	419 - Degree in Geography and Land Management
ECTS	9.0
Course	2
Period	Annual
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The learning and teaching methodology developed in the course *Tratamiento de la Información en Geografía* is aimed to promote the attainment of its objectives. A wide range of teaching and learning activities is implemented, such as interactive lessons, practical exercises, individual or group activities, directed activities and private study. Extensive material will be available *via* the Moodle site of the course. This offers a variety of resources including a repository of the lecture notes used in class as well as other forms of course-specific materials.

5.2.Learning activities

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The course has a theoretical-practical orientation. Usually, after a presentation of the conceptual and methodological aspects of the program we introduce interactive, individual or group activities using spreadsheets (Excel), statistical software (Past; SPSS; R) and Geographical Information Systems (ArcGIS). This orientation allows a dynamic participation process in which the intervention of the student can be continuous, and necessary to complete the teaching-learning process.

5.3.Program

The lecture course will address the following main issues:

Thematic block 0.

Topic 1. Nature of the geographical information: spatial units, thematic, temporal and topological components.

Topic 2. Sources of the information: problems and types.

Topic 3. Quality of the information.

Thematic block 1.

Topic 4. Introduction and initial considerations in the treatment of the information.

Topic 5. Descriptive statistics: measurements of centrality, dispersion and shape.

Topic 6. Distributions: types of variables, distributions for continuous and discrete variables.

Thematic block 2.

Topic 7. Probability: concept and calculation.

Topic 8. Confidence intervals and hypothesis testing.

Topic 9. Independence and association of quantitative variables: correlation and simple linear regression.

Topic 10. Multiple linear regression analysis.

Thematic block 3.

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Topic 11. Comparison between variables from two or more populations: one-factor ANOVA (analysis of variance).

Topic 12. Factorial ANOVA.

Seminar: Geographical Information Systems and spatial statistics.

5.4.Planning and scheduling

The course topics are divided into three main Thematic blocks (and an initial, introductory block; Topics 1-3). The first two Thematic blocks (Topics 4-10) run along the first semester and, the third one (Topics 11-12), in the first half of the second semester. After the completion of each one of these three main Thematic blocks, the students will make a written test and a practical exercise (in groups of three or four people) which will be presented in public.

After the Thematic blocks are taught the Seminar on "Geographical information systems and spatial statistics" will be run in the second half of the second semester. After its completion, the students will have to present, individually, a Learning Portfolio.

5.5.Bibliography and recomended resources

Basic bibliography:

O'SULLIVAN, D. y UNWIN, D. (2010): *Geographic Information Analysis* , Hoboken, John Wiley, 405 pp.

PEÑA, D. (2008): *Fundamentos de estadística* , Alianza Editorial, Madrid, 688 pp.

Recommended bibliography:

ALLEN ,D.W. (2010): *GIS Tutorial II: Spatial Analysis Workbook* , Redlands, ESRI Press, 340 pp.

CAMARERO, L. (coord.) (2010): *Estadística para la investigación social* , Garceta Grupo Editorial, Madrid, 308 pp.

DAVIS, J.C. (2002): *Statistics and data analysis in Geology* , Wiley & Sons, New York, 638 pp.

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PARDO, A. y RUIZ, M.A. (2002): *SPSS 11. Guía para el análisis de datos* , McGraw-Hill, Madrid, 715 pp.

PÉREZ, C. (2009): *Técnicas estadísticas multivariantes con SPSS* , Garceta Grupo Editorial, Madrid, 378 pp.

RASO, J.M., MARTÍN VIDE, J. y CLAVERO, P. (1987): *Estadística básica para Ciencias Sociales* , Ariel Geografía, Barcelona, 271 pp.

SÁNCHEZ CARRIÓN, J.J. (2008): *Manual de análisis estadístico de los datos* , Alianza Editotial, Madrid, 649 pp.

SANTOS, J.M. y GARCÍA, F.J. (2008): *Análisis estadístico de la Información Geográfica* , UNED, Madrid, 395 pp.

SHAW, G. y WHEELER, D. (1985): *Statistical techniques in Geographical Analysis* , Wiley & Sons, New York, 364 pp.

WONG, D.W.S. y LEE, J. (2005): *Statistical Analysis of Geographic Information* , Hoboken, John Wiley, 446 pp.