# GUÍA DOCENTE ABREVIADA DE LA ASIGNATURA

## G184 - Geographic Information Systems II (Vector-Based)

## Grado en Geografía y Ordenación del Territorio

Curso Académico 2023-2024

| 1. DATOS IDENTIFICATIVOS | | | | | |
|---|---|---|---|---|---|
| Título/s | Grado en Geografía y Ordenación del Territorio | | | Tipología y Curso | Obligatoria. Curso 3 |
| Centro | Facultad de Filosofía y Letras | | | | |
| Módulo / materia | FUNDAMENTOS TÉCNICOS EN GEOGRAFÍA Y ORDENACIÓN DEL TERRITORIO<br>MATERIAS TÉCNICAS EN GEOGRAFÍA | | | | |
| Código y denominación | G184 - Geographic Information Systems II (Vector-Based) | | | | |
| Créditos ECTS | 6 | Cuatrimestre | | Cuatrimestral (2) | |
| Web | | | | | |
| Idioma de impartición | Inglés | English friendly | No | Forma de impartición | Presencial |

| | |
|---|---|
| Departamento | DPTO. GEOGRAFIA, URBANISMO Y ORDENACION DEL TERRITORIO |
| Profesor responsable | PABLO FERNANDEZ DE ARROYABE HERNAEZ |
| E-mail | pablo.fdezarroyabe@unican.es |
| Número despacho | E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 2. DESPACHO (2046) |
| Otros profesores | |

### 3.1 RESULTADOS DE APRENDIZAJE

- Students will be able to transform a geographic problem into a logic model in the computer.They will acquire the ability to edit the spatial and non-spatial components of a thematic map.
  Students will understand and be able to distinguish the CAD edition from GIS edition modes.
  and they will have the ability to understand topological rules in vectorial formats with an Arc -Node data structure.
  Students will have the capacity to create SQL expressions and apply selection functions in a complex GIS environment .
  They will know how to use spatial analysis tools in order to solve different geographical problems .
  Students must know how to elaborate final layouts based on projects related to the use of GIS

## 4. OBJETIVOS

The main aim is to facilitate students the acquisition of theoretical knowledge and technical abilities that allow them to design and develop and GIS project according to a correct methodology.

## 6. ORGANIZACIÓN DOCENTE

| | CONTENIDOS |
|---|---|
| 1 | MODULE 1. THE SCIENCE OF GEOGRAPHIC DATA<br>1.1 Digital revolution and geographic information<br>1.2 Geographic data adquisition and management<br>1.3 Vectorial data structures |
| 2 | MODULE 2. ARCGIS PLATFORM<br>2.1 ArcGis Desktop, ArcGIS Pro and ArcGIS Online<br>2.2 Spatial reference systems in ArcGis<br>2.3 Georeferencing functions<br>2.4 The edition of vectorial maps in ArcGis |
| 3 | MODULE 3. GEOPROCESSING TOOLS AND DATA ANALYTICS<br>4.1 Basic queries and selection functions (RDBMS-SQL)<br>4.2 Spatial selections and unions<br>4.3 Advanced geoprocessing tools in ArcGis<br>4.4 Exploring the third dimensión (3D) in ArcGis<br>4.5 The geostatistical methods in ArcGis |
| 4 | MODULE 4. PLANNING YOUR GIS PROJECT<br>4.1 GIS Project: defining aims<br>4.2 Theoretical design on a spatial database<br>4.3 Technical implementation of the theoretical design<br>4.4 Presenting and displaying results |
| 5 | MODULE 5. BIG DATA AND GEOGRAPHIC INFORMATION<br>5.1 The added value of Spatial Big Data<br>5.2 ETL-OLAP tools<br>5.2 GIS and Cloud Computing<br>5.4 Artificial Inteligence and GIS |

## 7. MÉTODOS DE LA EVALUACIÓN

| Descripción | Tipología | Eval. Final | Recuper. | % |
|---|---|---|---|---|
| Practical exam | Evaluación en laboratorio | Sí | Sí | 40,00 |
| Theoretical exam | Examen escrito | Sí | Sí | 20,00 |
| Continuous assessment | Actividad de evaluación con soporte virtual | No | Sí | 40,00 |
| TOTAL | | | | 100,00 |

**Observaciones**

Plagiarisms or fraudulent realization of evaluation activities will not be accepted at any point and be marked with 0 points in this course. Practical exam will be taken on dates indicated by the Faculty
Theoretical exam will be a multiple choice questionnaire and wrong answers will count negatively
In the event that the health situation forces to modify the face-to-face conditions towards a scenario 2 (mixed teaching) or a scenario 3 (virtual teaching), the assistance will be verified by means of the tools available on the UC institutional platforms (connection time , student responses in MOODLE chats and forums, video calls etc ...)
If a student does not obtain the minimum grade required to pass an evaluation test, the overall grade for the subject will be the lowest value between 4.9 and the weighted average of all the evaluation tests.

**Criterios de evaluación para estudiantes a tiempo parcial**

Part-time students, or those who justifiably cannot follow the continuous assessment, may be evaluated through the delivery of a work that will be agreed with the professor responsible for the subject. Attendance is mandatory in the case of field activities

## 8. BIBLIOGRAFÍA Y MATERIALES DIDÁCTICOS

**BÁSICA**

BOSQUE SENDRA, J. (1992)
Sistemas de Información Geográfica. Ed. Rialp, S.A. Madrid

LONGLEY, P. A.; GOODCHILD, M.F.; MAGUIRRE, D.J.; RHIND, D.W. (2011)
Geographic Information Systems & Science. Ed. WILEY.

COMAS, D. RUIZ, E. (1993)
Fundamentos de los Sistemas de Información Geográfica. Ed. Ariel, S.A. Barcelona.

FERNANDEZ DE ARROYABE HERNAEZ, P. (2003)
Sistemas de Información Geográfica Vectoriales: ejercicios prácticos bajo una estructura de datos Arco-Nodo. Santander, TGD, SL. Pag.150

FERNANDEZ DE ARROYABE HERNAEZ, P. (2003)
Sistemas de información geográfica vectoriales: ejercicios prácticos bajo una estructura de datos Arco-Nodo. TGD, Santander.

FERNANDEZ DE ARROYABE HERNAEZ, P. (2018)
Del “geographical feature” al “dataset” en ArcGis: modelización y análisis geográfico. TGD, Santander (con CD de ejercicios).

Esta es la Guía Docente abreviada de la asignatura. Tienes también publicada en la Web la información más detallada de la asignatura en la Guía Docente Completa.