



Universitat de Lleida

DEGREE CURRICULUM
DATABASES AND GIS

Coordination: PIÑOL ESTEBAN, XAVIER

Academic year 2020-21

Subject's general information

Subject name	DATABASES AND GIS			
Code	101155			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Geography	4	OPTIONAL	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB		TEORIA
	Number of credits	3		3
	Number of groups	1		1
Coordination	PIÑOL ESTEBAN, XAVIER			
Department	COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING			
Teaching load distribution between lectures and independent student work	Theoretical-practical classes: 60 hours Autonomous work of the student: 90 hours			
Important information on data processing	Consult this link for more information.			
Language	Catalan and Spanish. English as a language of most of the programs used			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PIÑOL ESTEBAN, XAVIER	xavier.pinol@udl.cat	6	

Subject's extra information

The Databases and GIS course is part of the subject "Cartography" of the geography degree curriculum and provides methodological and technical skills for the management and analysis of spatial information. The subject has a strong practical character. It aims to convey the knowledge of the fundamentals of databases and provide the student with experience in the management of Database Management Systems. The competences to acquire are fundamental for geographers. This subject will be complemented by three subsequent GIS courses in the Degree of Geography. At the end of the course, the student will acquire the necessary skills to work independently the data with GIS tools in any field.

Learning objectives

Students who successfully complete this course will be able to:

1. Design a Database.
2. Create a Database within a Database Management System (DBMS)
3. Assess the difficulty of modifying an existing database.
4. Master the basic tools of a DBMS.
5. Handle the language and specific terminology of Databases
6. Know how to use the language Structured Query Language (SQL).
7. Know how to get information from a database with SQL.
8. Know how to import a spatial layer into an existing database.
9. Know how to use an imported spatial layer into a database from a SIG tool.
10. Assess the importance of the use of the databases in SIG.

Learning outcomes:

- Critical sense in the segmentation of statistical information by intervals.
- Critical sense in the graphic expression of statistical information.
- Versatility and adaptability in the use of new cartographic technologies.
- Full capacity to design and ideal map for any geographical, physical or human information assumption.

Competences

CB2 Apply your knowledge to your work or vocation in a professional manner and gain the competence that is usually demonstrated by means of the development and defence of arguments and resolution of problems within your area of study

CB4 Power to transmit information, ideas, problems and solutions to a specialized and non-specialized audience

CB5 Know how to develop those learning abilities necessary to undertake further studies with a high degree of autonomy

CE1 Handle and use the methods and techniques of analysis and interpretation of statistical sources

CT3 Acquire training in the use of new technologies and information and communication technologies

Subject contents

Module 1:

- Database design.
- Introduction to PostgreSQL.
- Creation of a database with PostgreSQL.

Module 2:

- Introduction to Structured Query Language (SQL)
- SQL Queries.
- Import a spatial layer into an existing database.

Module 3:

- Integration of a SIG tool with PostgreSQL.

Methodology

1. Master classes.
2. Supervision of practices.
3. Carry out learning folder.
4. Drafting of projects.

The development of the subject is supported by the alternation of master classes and practices to the computer, where the teacher guides the student in the management and development of the practice presented.

Development plan

The subject presents a mixed teaching (face-to-face and online through the use of videoconferences). During the course there will be 5 specific practice sessions on Wednesdays in the computer room or by videoconference. These 5 sessions last three hours respectively

Complementary activities : 15 hours

Exposition of basic contents and practices in the computer classroom under the supervision of the teacher: 45 hours.

Self-employed work of the student: 90 hours.

Total: 150 hours.

In the event that online classes, sessions can be registered, in this case in accordance with current regulations on data protection of a personal nature, we inform you that:

- The organisation responsible for the recording and use of the image and voice is the University of Lleida - UdL (contact details of the representative: General Secretariat. Plaza Víctor Siurana, 1, 25003

Lleida;sg@udl.cat; contact details of the data protection officer: dpd@udl.cat).

- The recorded images and voices shall be used exclusively for teaching purposes.
- The recorded images and voices shall be saved and preserved until the end of the current academic year, and shall be destroyed in accordance with the terms and conditions specified in the regulations on the preservation and disposal of administrative documents of the UdL, and the documentary evaluation tables approved by the Generalitat de Catalunya (<http://www.udl.cat/ca/serveis/arxiu/>).
- The voices and images are considered necessary to teach this subject, and teaching is a right and a duty of the teaching staff of the Universities, which they must exercise under academic freedom, as provided for in article 33.2 of the Organic Law of Universities (Ley Orgánica de Universidades) 6/2001, of December 21. For this reason, the UdL does not need the consent of the students to register their voices and images with the sole and exclusive purpose of teaching in this particular subject.
- The UdL shall not transfer the data to third parties, except in the cases strictly provided for by the Law.
- The student can access their data; request correction, deletion or portability; object to its processing and request its limitation, as long as it is compatible with the purposes of teaching, by writing to dpd@udl.cat. You can also submit a complaint to the Catalan Data Protection Authority, via a mail to its website (<https://seu.apd.cat>) or other non-electronic means.

Evaluation

Description	Weight	Minimum mark	Recoverable	Individual/Group
Project part 1	20%	5	Yes	Group
Project part 2	20%	5	Yes	Group
Project part 3	20%	5	Yes	Group
Assistance	10%	6	No	Individual
Exam	30%	5	Yes	Individual

Students who combine their degree with a full time job have the right to ask for alternative assessment within 5 days after the beginning of the semester. For information, please send an e-mail to academic@lletres.udl.cat or ask for information at the Faculty's secretary (Secretaria de la Facultat de Lletres).

Bibliography

PostgreSQL:

<https://www.postgresql.org/docs/>

Database design:

Jose Manuel Piñeiro Gomes (2014) : UF2175 - Diseño de bases de datos relacionales

Editorial: Paraninfo **ISBN 13:** 9788428398251 **ISBN 10:** 8428398259

Pedro J Moreno Garcia (2011): Bases de Datos Relacionales: Diseño e implementación. **Editorial:** Diego Marin. **ISBN:** 9788484258766

VV.AA. (2005): Bases de datos relacionales: fundamentos y diseño lógico **Editorial:** UNIVERSIDAD PONTIFICIA COMILLAS **ISBN:** 9788484681724