



## COURSE DATA

### DATA SUBJECT

**Code:** 33087  
**Name:** Physical geography  
**Cycle:** Undergraduate Studies  
**ECTS Credits:** 4.5  
**Academic year:** 2025-26

### STUDY (S)

Degree	Center	Acad. year	Period
1104 - Degree in Environmental Sciences	Facultat de Ciències Biològiques	2	Second quarter

### SUBJECT-MATTER

Degree	Subject-matter	Character
1104 - Degree in Environmental Sciences	Physical geography	COMPULSORY

### COORDINATION

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## SUMMARY

Physical Geography subject is inserted into the module level called Environmental Sciences "scientific basis of the natural environment" that consists of 8 subjects and corresponding to a total of 4,5 credits. These matters are referred to the biological, physical and interaction. Taught during semesters 2, 3 and 4. Geography Matte Physics (4,5 credits) and Ecology (9 crecits) are given at the end, in the 4th quarter, when the student has completed the basic specific matters relating to the natural environment.

The puerpose of Physical Geography matters is to make a comprehensive and holistic presentation of the main environmental Earth systems (drainage basin, waterways, coastline, glaciers.....) as well as the effect of human activities and its environmental problems. The approach is systemic currently teaching both Environmental Sciences and Physical Geography. the systemic approach shows how factors operating in the environemnt and how the analysis process provides the key to understanding their operation nteract. The systemic approach from Physical Geography also allows integrating the study of processes with human action and environmental degradation at different temporal scales. Special emphasis on the Mediterranean environment suestem that students at this level are as referenced.

## PREVIOUS KNOWLEDGE

### RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE



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

## **OTHER REQUIREMENTS**

The student must have completed the specific basic subjects of the module "Scientific bases of the natural environment"

## **COMPETENCES / LEARNING OUTCOMES**

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Comprender y manejar diferentes escalas espaciales y temporales en la interpretación de los sistemas naturales.

Conocer los principales impactos humanos sobre los sistemas naturales.

Conocer y comprender los principales sistemas naturales, sus características geomorfológicas y los procesos que las originan.

## **DESCRIPTION OF CONTENTS**

### **1. SYSTEMS AND MODELS. SPATIAL AND TEMPORAL SCALES**

1. Definition of systems and models.
2. Matter and energy.
3. Answers to the exchange of matter and energy.
4. Concept balance.
5. Scales in physical geography. Zonality, altitude, asymmetry

### **2. FLUVIAL SYSTEM**

#### **A. Fundamentals hydrological**

1. Flow and sediment: genesis of runoff flow regime.
2. Processes in the channel : flow characteristics , erosion and transport.

#### **B. Forms and fluvial deposits**

- 1 Modalities of channels : controls how channel settings , fluvial geomorphology.

#### **C. Climate Change**

1. Environmental change . alluvial files
2. Anthropic Action channels , environmental degradation, river restoration .



### **3. COASTAL SIYSTEM**

1. Introduction: definitions and classification power.
2. Dynamics of marine waters: waves, tides and currents.
3. Products littoral or coastal morphology dynamics.
  - a. Destructive phenomena and the resulting modeling
  - b. Constructive and resulting forms Phenomena
4. Risk in the littoral zone: coastal management.

### **4. ARID SYSTEM**

1. Gradation aridity: semiarid, arid and hyperarid domains.
2. Dominant processes in arid and semi-arid.
3. Shapes relief and aridity.
4. Inherited and current forms.

### **5. GLACIAL SYSTEM**

1. Glacial and periglacial Introduction to the system.
2. Flows, sediments and glacial forms system.
3. The periglacial environment. Processes and forms.
4. Global warming and melting glaciers

### **6. MEDITERRANEAN SYSTEM**

1. Geographic profiling: a world of transition.
- 2 Recent environmental history: an intensification of human action?
3. Environmental crises Large Mediterranean. Messinian Crisis
- 4 Case Study: Mediterranean forest

### **7. LABORATORY**

Two fields work. The first is the topographic map centered mainly on the analysis of the topography and surveying. The second is the treatment of aerial photography and photo interpretation, focusing on analysis of forms and changes in land use.

TOPIC 1 Analysis of the topographic map.:

- 1.1. scale, area, UTM.
- 1.2. representation of relief: analysis of landforms (mountains, hills, valleys, cliffs, talweg, etc..).
- 1.3. Measurements: profiles, watersheds, ...



TOPIC 2. Practices aerial photography.

2.1. Photointerpretation forms and land uses in areas of the river system and shoreline.

## 8. FIELDWORK

Two fieldwork. The first of this specific subject with the aim of working processes and forms studied in lectures, especially the semi-arid fluvial system. The second is done in coordination with the subject of Ecology to analyze fluvial morphology and anthropogenic processes in coastal and hillside areas.

First fieldwork. Topics discussed:

1. Fluvial system: analysis of forms and processes on runway.
2. Historical and recent anthropic action. Environmental impact.
3. Fluvial geomorphology. Riparian vegetation

Second fieldwork. Topics discussed:

1. Introducing environmental issues (wetlands and climate change, coastal erosion ...).
2. River Records and environmental changes during the Quaternary.
3. Environmental degradation. Forest fires and restoration

## WORKLOAD

### PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	27,00
Laboratory	9,00
Computer classroom practice	7,00
<b>Total hours</b>	<b>45,00</b>

### NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	17,50
Independent study and work	28,00
Preparation of lessons	22,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
<b>Total hours</b>	<b>67,50</b>

## TEACHING METHODOLOGY



### 1 Theory classes.

Explanation of the basic contents of each subject of the course. Didactic resources such as .ppt presentations, images of the different environments, graphs and diagrams are used. All the material used in the classroom is available to the student in the virtual classroom. The student will be referred to specific bibliography to complement the information provided in class. The proposed readings are compulsory, so they must have been done if the student wants to apply for the advance of the exam.

### 2. Practical classes.

Practical classes will be given in the cartography and photo-interpretation laboratory. They are oriented, firstly, to the study of the topographic map carrying out various exercises of topographic measurements and coordinates and, to the analysis of the relief, mainly focused on the recognition of both morphologies and elements of the fluvial system. Secondly, work is carried out on aerial photography and photo-interpretation, with special emphasis on work oriented towards diachronic analysis.

These laboratory practicals are compulsory and the student must have completed them in order to be able to apply for the advance of the exam.

### 3. Field work.

Two field trips with a total duration of 11 hours will be carried out. This activity is mainly aimed at putting the student in contact with reality. The field trips are carried out late in the course, when the student has a theoretical-practical base (cabinet) minimally consolidated so that he/she can try to recognise in the field the systems or theoretical models dealt with in the classroom.

## EVALUATION

It is carried out on the basis of:

- Evaluation of the theoretical contents in a written test (65 %). A pass mark (5 out of 10) is essential for the practical part of the course to be taken into account.

- Evaluation of the contents of the practical part (35%) based on: a) the laboratory practical notebook (20%) and, b) a written test of the knowledge of the practical classes (15%).

The grade corresponding to the laboratory practical notebook (20%) can only be kept if it has been done in the previous year and if it is of interest to the student.

In order to apply for the advance of this subject, students must take into account that they must have



completed the compulsory activities indicated in the subject's teaching guide.

## REFERENCES

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- Ernst, W.G. ed (2000): *Earth Systems: processes and issues*. Cambridge: Cambridge University Press. - Evans, D.J.A. (2003): *Glacial Landscapes*. Arnold, London 532 pp.
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- Holden, J. (2008): *An Introduction to Physical Geography and the Environment*. Pearson
- López Bermúdez, F.; Rubio Recio, J.M. y Cuadrat, J.M. (1992): *Geografía Física*. Ediciones Cátedra (Madrid).
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- Tarbuck, E., Lutgens, F. y Tasa, D. 2009. *Earth. An Introduction to Physical Geology: International Edition*. Oxford University Press, 657 pp.
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