

**COURSE DATA****Data Subject**

|                      |              |
|----------------------|--------------|
| <b>Code</b>          | 33788        |
| <b>Name</b>          | Biogeography |
| <b>Cycle</b>         | Grade        |
| <b>ECTS Credits</b>  | 6.0          |
| <b>Academic year</b> | 2020 - 2021  |

**Study (s)**

| <b>Degree</b>                                  | <b>Center</b>                    | <b>Acad. year</b> | <b>Period</b> |
|--|----------------------------------|-------------------|---------------|
| 1318 - Degree in Geography and the Environment | Faculty of Geography and History | 3                 | Second term   |

**Subject-matter**

| <b>Degree</b>                                  | <b>Subject-matter</b> | <b>Character</b> |
|--|-----------------------|------------------|
| 1318 - Degree in Geography and the Environment | 598 - Biogeography    | Obligatory       |

**Coordination**

| <b>Name</b>               | <b>Department</b> |
|---------------------------|-------------------|
| RUESCAS ORIENT, ANA BELEN | 195 - Geography   |

**SUMMARY**

Biogeography is concerned with the spatial and temporal distribution of living beings on the Earth's surface. As a part of Geography its object is the study of the territory as a system. One of the elements constituting this system is the vegetation (and wildlife). Biogeography doesn't study vegetation (and wild) in itself, but in relation to the other - natural and cultural - ingredients of the territory and of the landscape.

Based on knowledge acquired in previous subjects like *Introduction to Physical Geography* of the first year, Biogeography deepens in issues that concern the Biosphere by applying some of the teachings received in *Climatology*, *Geomorphology I* and *II* - for the special relevance of climate and topography as a distribution factor of life and their importance in explaining the vegetation landscape. Biogeography also returns on some of the techniques of interpretation and mapping, for interpretive reading of vegetation maps and aerial photos and to design simple vegetable distribution graphs.



## 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 recommended that students entering the course of Biogeography have previously studied and passed the following courses: Introduction to Geography and Environment, Introduction to Physical Geography, Cartography I, Climatology, Geomorphology I, Geomorphology II, Geography of Spain and Geography of the Land of Valencia.

## COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

### 1318 - Degree in Geography and the Environment

- Have capacity for analysis and synthesis.
- Have oral and written communication skills in one's own language and in a foreign language.
- Be able to work independently.
- Be able to work in interdisciplinary teams.
- Show motivation for quality, responsibility and intellectual honesty.
- Learn about physical geography.
- Learn about methodology and fieldwork.
- Be able to relate the natural environment and the social and human spheres.
- Analyse and value landscapes from a spatial-temporal perspective.
- Learn basic techniques for fieldwork in geography and particularly for reading and interpreting the landscape in geographic terms.

## LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

To know and to know how to apply the fundamental concepts of Biogeography, with special attention to the Phytogeography and to learn about the scientific context of these concepts.

2. To know and to use the fundamental biogeographical literature sources and to be able to extract from them the basic biogeographical knowledge, such as: the patterns of species distribution across geographical areas; essential characteristics of terrestrial biomes, Atlantic and Mediterranean altitudinal stages; main factors of distribution of the terrestrial life, main biogeographical approaches, and so on.

3. To learn, through the preparation of a herbarium, image analysis and field observation, to recognize the Phytogeography's subjects (flora and vegetation) and to extend this knowledge independently.

4. To learn to analyze current continental distribution of life (using examples of the surrounding landscape) and to deduce the mesologic factors determining their distribution.

5. To learn some simple techniques to analyze the evolution of vegetation's distribution and to interpret the results of more complex techniques.

6. To obtain a basic understanding of Zoogeography and Geography of Soils.



7. To appreciate the biotic world complexity, their internal interactions and those with the abiotic world.
8. To know some of the possible applications of biogeographical knowledge.

## DESCRIPTION OF CONTENTS

### 1. Biogeographical concepts and major scientific approaches.

- a) Courses presentation. What is Biogeography?
- b) Key figures and milestones in the progress of Biogeography.

### 2. Living beings and their classification.

- a) What is a living being? Classification of living beings.

Exercise 1: Identify and characterize the main parts of a Spermatophyte.

Practice 1: Classification of plants and confection of a herbarium. (Optional group work - individual delivery of a herbarium = 1 per student)

### 3. The Corology

- a) Floristic and cartographic documentation. Ranges and types. Centre of origin / periphery. Speciation and types.

Exercise 2: Analysis of different forms of ranges representation.

- b) Floristic organization of Earth's vegetation. Floristic contrast. Floristic gradient. Biodiversity. Earths Floristic Kingdoms. Floristic Regions of the Holarctic Kingdom.

### 4. Ecological factors of distribution of Earths life.

- a) Abiotic external factors: climate (radiation and light, temperature, humidity and wind). Biomes.

Practice 2: Methods of analysis of vegetation distribution depending on substrate and topography. Plants inventory MIFyC (Gentry) and data processing.

Fieldwork 1: La Vallesa. Implementation of an inventory method (group)

Fieldwork 2: From the Valencian coast to the Peñarroya. (group)

- b) Abiotic external factors: the substrate.

- c) Abiotic external factors: the topography (altitude, exposure, slope). The toposequence.

Practice 3: Analysis of vegetation distribution depending on climate. Altitudinal stages.

- d) Biotic factors. Competition. Dependence. Spread capacity.

### 5. The Phytogeography

- a) The phytosociological method. Characteristic species, differential species and companion species. Inventory. Syntaxonomy. Criticism of the method. Map of vegetation series in Spain.

- b) The physiognomic-ecological approach. Formations types. Classification. Europes vegetation map.

- c) Dynamics of vegetation. The plant succession and study methods. Actual and potential vegetation. The Palaeobiogeography.

**6. Fundamentals of Zoogeography and Soil Geography.**

- a) Fundamentals of Zoogeography. Methodologies for species recognition.
- b) Concepts of Soil Science. Soil formation. Soil components and soil properties.

**WORKLOAD**

| ACTIVITY                                     | Hours         | % To be attended |
|--|---------------|------------------|
| Theory classes                               | 30,00         | 100              |
| Other activities                             | 15,00         | 100              |
| Classroom practices                          | 15,00         | 100              |
| Attendance at events and external activities | 14,00         | 0                |
| Development of group work                    | 10,00         | 0                |
| Development of individual work               | 10,00         | 0                |
| Study and independent work                   | 10,00         | 0                |
| Readings supplementary material              | 10,00         | 0                |
| Preparation of evaluation activities         | 15,00         | 0                |
| Preparing lectures                           | 15,00         | 0                |
| Resolution of case studies                   | 6,00          | 0                |
| <b>TOTAL</b>                                 | <b>150,00</b> |                  |

**TEACHING METHODOLOGY**

Teaching methodology combines theory, practice and fieldwork. Theoretic subjects are to be prepared by students, following professor's guidelines and literature. Practical work consists in short extension exercises, and two more extensive works, about the characterization of a forest structure and about the ecological factors affecting altitudinal distribution of vegetation. This more important works are to be performed in teams during practical classes, fieldwork and homework. Furthermore, students will be guided in plant classification and in the drawing up of a virtual herbarium.

**CLASSES:** The thread of the biogeographical subjects and the most complex biogeographical issues will be explained in lectures. Study material, literature and sources will be also indicated. The student will be provided with a dossier for drills and exercises. Practical work will be explained in practical classes, where also teamwork will be supervise and results will be discussed.

**ACTIVITIES OUT OF CLASSROOM:** Fieldwork. See Annex to the Guide.

**TEAMWORK** See Annex to the Guide. Teamwork is recommended for the drawing up of a virtual herbarium, although each student will present his or her individual herbarium. Extensive works and corresponding reports will both be done in small teams.



**TUTORIALS:** Students will have at their disposal weekly mandatory hours of tutorials and also virtual access to the professor.

## EVALUATION

It will combine continuous assessment (participation in class, exercises), assesment of practical work and a final exam.

1. Continuous assessment (exercises and participation) 10% of the qualification.
2. Practice: 25% of the qualification.
3. Final exam: 65% of the qualification.

Delivery of the properly prepared exercises and works is prerequisite to pass the course.

## REFERENCES

### Basic

- CASTRO, E. B. (1997). Los bosques ibéricos: una interpretación geobotánica. GeoPlaneta, Editorial, SA.
- COSTA,M. (1999) La vegetación y el paisaje en las tierras valencianas, Madrid, Ed. Rueda, 342 pp.
- FERRERAS,C. y FIDALGO,C.E. (1991) Biogeografía y Edafogeografía. Madrid, Síntesis, 262 pp.
- LACOSTE,A. Y SALANON,R. (1981) Biogeografía, Barcelona, Oikos-Tau, 272pp.
- MEAZA,G. (Dir.) (2000) Metodología y Práctica de la Biogeografía. Barcelona, Barcelona, El Serbal., 392 pp.
- PANAREDA, J.M. (1998) Biogeografía. En Rosselló Verger, V. M., Panareda, J. M., i Pérez Cueva, A. . Manual de Geografía Física (Vol. 8). Universitat de València
- PORTA CASANELLAS, J., LÓPEZ-ACEVEDO, M. y ROQUERO, C. (2011) (3ª ed.) Edafología. para la agricultura y el medio ambiente. Mundi Prensa, 929 pp.
- RUBIO RECIO, J.M. (1989) Biogeografía. Paisajes vegetales y vida animal, Madrid: Editorial Síntesis,
- RUBIO RECIO, J.M. (1992) Biogeografía. En LÓPEZ BERMÚDEZ, RUBIO RECIO & CUADRAT Geografía Física, Madrid: Editorial Cátedra, 594 p
- STRAHLER,A. & STRAHLER,A. (1989) Geografía Física, Barcelona, Omega, 550 pp.
- ZUNINO, M. y ZULLINI, A. (2003) Biogeografía. La dimensión espacial de la evolución. Fondo de Cultura Económica. Mexico.





### **Additional**

- AROZENA, M.E., BELTRÁN, E. y DORTA, P. (2003) (dir.): La biogeografía: ciencia geografica y ciencia biológica, II Congreso Español de Biogeografía, Univ. La Laguna, 366 pp
- BALCELLS, E. (1991) Reflexiones sobre Zoogeografía y Ecofisiología animal. Su apoyo a estudios de Ordenación del Territorio. Discurso de investidura Doctor Honoris Causa por la Universidad de Zaragoza.
- BEIERKUHNLEIN, C. (2007) Biogeographie, Stuttgart, Ulmer UTB, 397 pp
- COMISIÓN DE SUPERVIVENCIA DE ESPECIES DE LA UICN (1994) Categorías de las Listas Rojas de la UICN. Gland, Consejo de la UICN, 22 p. (red)  
<http://www.iucn.org/webfiles/doc/SSC/RedList/redlistcatspanish.pdf>
- CONSEJO DE LAS COMUNIDADES EUROPEAS Directiva nº 92/43/CEE de 21 de mayo de 1992, relativa a la conservación de los hábitats naturales y de la fauna y flora silvestres. Diario Oficial de las Comunidades Europeas. L 206, 1992. 50 p.
- GANDERTON, P. & COKER, P. (2005) Environmental Biogeography, Halow, etc. Prentice Hall, 283 p
- HUGGETT, R.J. (2011) Fundamentals of Biogeography, London y New Cork, Routledge, 439 p.
- MACDONALD, GLEN (2003) Biogeography. Introduction to Space, Time & Life, John Wiley & Sons, 518 pp.
- SCHMITT, E., SCHMITT, Th., GLAWION, R. y H.-J. KLINK (2012) Biogeographie, Braunschweig, Westermann, 398p.

### **ADDENDUM COVID-19**

**This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council**

### **SEMI-PRESENTIAL TEACHING**

#### **1. Contents**

The contents initially included in the teaching guide are maintained

#### **2. Workload and time schedule**



The activities and their hours of dedication in ECTS credits marked in the original course guide will be kept. Theoretical and practical classes attendance will be 100%. Supplementary activities (weekly hour O: total 15 h.) may require attendance (field trips, seminars) or could be online, and will be specified at the beginning of the term in the Annex to the Course Guide, like the rest of the teaching planning.

### **3. Teaching Methodology**

Theory and practice classes that may be complemented with different types of materials and activities in the Virtual classroom.

Tutorials will be done online (through the UV corporate mail) or face-to-face by prior appointment with the teacher.

If the sanitary situation changes and no access to the University facilities is possible, teaching and tutorials will be carried out completely online. In this case, the adaptations will be communicated to the students through the Virtual classroom.

### **4. Evaluation**

The evaluation criteria established in the Course Guide are kept.

If the University facilities were closed on the dates set in the official calendar for the final exam, the face-to-face exam would be replaced by an online test.

The exam will consist of two parts: a first multiple-choice part (80%), and a second part that may consist of free-response questions that may include the interpretation of figures or maps (20%).

### **5. Bibliographic references**

The recommended bibliography in the Course Guide is kept. If the sanitary situation changes and the access to the recommended bibliography is not possible, it will be replaced by materials accessible online.