

**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>	2023 - 2024

**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.

## OUTCOMES

### 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

Know and be able to apply the fundamental concepts of Biogeography, with special attention to Phytogeography, and know the scientific context of these concepts.

Know and be able to use the fundamental biogeographical bibliographic sources and be able to extract from them the basic biogeographical knowledge, such as: distribution and essential characteristics of terrestrial biomes, Atlantic and Mediterranean altitudes, main factors of distribution of living beings, main approaches in biogeographic study, etc.

Know how to easily analyze the current continental distribution of living things (in the nearby landscape) and deduce the mesological factors that determine that distribution.



Know some simple techniques for analyzing the evolution of vegetation distribution and know how to interpret the results of more complex techniques.

Be aware of the complexity of the biotic world, its internal interrelationships and the abiotic world.

## 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. Fundamentals of Soil Phogeography.

- a) The changing Earth: the tectonic history of the continents
- b) Concepts of Soil Science. Soil formation. Soil components and properties.

### 3. Biogeographic patterns

- a) Review of the current configuration of geographical patterns (topography, climatology, soils).
- b) Distribution factors of living beings: internal and external factors (biotic and abiotic)
- c) Large biomes
- d) Introduction to Chorology: the concept of biogeographic realm.

### 4. Distribution of species

- a) Dispersion and immigration
- b) Speciation and extinction
- c) Biogeography of islands.

### 5. The Phytogeography

- a) The physiognomic-ecological method. Types of formations. Classification. The vegetation map of Europe.
- b) The phytosociological method. Characteristic, differential and accompanying species. Inventories.
- c) The map of vegetation series of Spain.
- d) Vegetation dynamics. Plant succession and study methods. Current and potential vegetation.

**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** Mandatory. See Annex to the Guide.

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



## EVALUATION

The continuous assessment (class interventions, exercises) will be combined with the assessment of the reports and practices and that of the final exam.

1. Continuous assessment: exercises and interventions 10% of the mark.
2. Internships: 30% of the grade.
3. Final exam: 60% of the grade.

The delivery of the exercises and works correctly elaborated is condition sine qua non to pass the asignatura.

If the final exam is not passed, the other marks will not be added to the final mark.

## REFERENCES

### Basic

- Alcaraz, F.; Clemente, M.; Barreña, J.A. y Álvarez Rogel, J. 1999. Manual de teoría y práctica de Geobotánica. ICE Universidad de Murcia y Diego Marín. Murcia.
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- Klemming, J.M. Historia de las teorías evolutivas. Sociedad Española de Biología Evolutiva. <https://sesbe.org/temas-de-biologia-evolutiva/>
- Lacoste, A. y Salanon R., (1981) Biogeografía, Oikos-fau, pp.271
- Lomolino, M.V, Riddle B.R y Whittaker, R.J. (2016) Biogeography, Fifth Edition. Sinauer Associates Inc., USA, 759 pp.
- Otero González. J.C. (2020) La Geografía de la Vida: la Biogeografía. Ed. Aula Magna, España, pp.510
- Porta Casanellas, J., López-Acevedo, M. y Roquero, C. (2011) (3ª ed.) Edafología. para la agricultura y el medio ambiente. Mundi Prensa, 929 pp.





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- Strahler, A. & Strahler, A. (1996) Geografía Física, Barcelona, Omega, 550 pp.

#### **Additional**

- Bonnier, G. y de Layens, G. (1997) Claves para la determinación de las plantas vasculares. Ed. OMEGA, pp. 448
- Bryson, B. (2003) Una breve historia de casi todo. Ed, RBA, Barcelona, pp.452
- Cámara R., Díaz del Olmo F. y Borja, C. (2013), Muestreo en transecto de formaciones vegetales de fenorófitos y caméfitos (MIFC) (II): estudio de los sabinars de la Reserva Biológica de Doñana (RDB) (España), Estudios Geográficos, Vol. LXXIV, 274, pp.89-114. Doi 10.3989/estgeogr.201304
- Mateo, G. y Crespo, M.B. 2001. Manual para la determinación de la flora valenciana. 2 ed. Flora Montiberica. Valencia
- Meaza, G. (ed.) (2000) Metodología y práctica de la Biogeografía. Ed.del Serbal, pp.392
- Rivas-Martínez, S. (1987) Mapa y Memoria de series de vegetación de España 1:400.000. Madrid: Ministerio, Madrid, ICONA, 268 pp.
- Rubio Recio, J.M. (1988) Biogeografía. Paisajes vegetales y vida animal. Ed. Síntesis, pp.169
- Richter-Boix, A. Darwin, las Galápagos y el misterio de los misterios: <https://andaresdelaciencia.com/2018/11/01/darwin-las-galapagos-y-el-misterio-de-los-misterios/>
- Richter-Boix, A. Lamarck, Darwin y la jirafa: un conflicto que nunca existió: <https://andaresdelaciencia.com/2017/06/17/lamarck-darwin-y-la-jirafa-un-conflicto-que-nunca-existio/>