

COURSE OUTLINE

(1) General

School:	Social Sciences		
Academic Unit:	Geography		
Level of studies	Undergraduate		
Course Code:	GEO 412	Semester:	G
Course Title:	Biogeography		
Independent Teaching Activities	Weekly Teaching Hours	Credits	
Lecture		3	
Course total			5
Course Type:	Required Elective		
Prerequisite Courses:	None		
Language of Instruction and Examinations	Greek		
Is the course offered to Erasmus students:	No		
Course Website (Url):	https://geography.aegean.gr/pps/index_en.php?content=0&lesson=412		

(2) Learning Outcomes

Learning Outcomes

Upon completion of the course, the student is expected to:

- understand the complex geological and biological history of the earth that through evolution and the ever-changing climate and geological and chemical conditions has come to host a large number of different species
- recognize how millions of species appeared and disappeared from the planet, and how today's biodiversity, although the largest the planet has ever seen, is but a mere snapshot of its ongoing history
- understand the processes that shaped past and current biomes
- to distinguish different types of dispersal in space and its barriers
- have developed a unified grasp of biogeography, leading to a thorough understanding of the Theory of Island Biogeography

General Competences

1. Search for, analysis and synthesis of data and information, with the use of the necessary technology
2. Decision-making
3. Working independently
4. Respect for the natural environment
5. Criticism and self-criticism
6. Production of free, creative and inductive thinking

(3) Syllabus

Starting from the very beginnings of the existence of the planet, the course takes the participant on a journey through the different stages of the geological and biological history of the Earth. The student learns about the earliest organisms that inhabited the planet and how through evolution and under the influence of ever changing climatic, geological physical and chemical conditions the Earth brought forward an array of different species. The student learns how millions of species have appeared and gone extinct and that today's biodiversity, although the highest our planet has seen, is merely a snapshot in the Earth's on-going history. The course shows how the Earth's tectonics influenced the climatic condition through history and how this in turn influenced the distribution of living organisms in the past until today. Thus, the student gains a thorough understanding of the processes that shaped past and present biomes. In addition, the students learn about why and how organisms disperse in space, and what limits the distribution of those organisms. Particular emphasis is laid on the description of the Earth's major biomes using videos, images and sound recordings. The student also gains insight into the history of Biogeography as a scientific discipline from the earliest contributors to modern times. In a supportive environment the participants are challenged to develop a unifying concept for Biogeography leading onto the understanding of the central Theory of Island Biogeography by MacArthur and Wilson.

As this course has no prerequisites, all the natural (biological, chemical, physical) processes required for the full understanding of the taught material are thoroughly explained.

The student is given the opportunity to give a presentation or write an essay on a biogeographical aspect of their choice with the supervision of the course convenor.

- Biogeography and physical environment: Principles and History of Biogeography. Physical environment. Distributions of communities.
- World's major biomes: Mediterranean (-type climate) biome, different desert biomes, tropical rain forest, temperate forest, boreal forest biomes, alpine biome, temperate grassland biome, savannah biome, arctic biome etc.
- Earth's tectonic history - Effects on species distribution: Glaciations (extent and causes and effects of glaciations - biogeographic responses to glaciations).
- Species distribution in time and space. Speciation and extinction. Dispersal and range expansion. Endemism, provincialism, and disjunction.
- Island biogeography: Patterns in species richness - patterns in assembly and evolution of insular communities. Evolutionary trends on islands. Theory of Island Biogeography (area effect, distance effect on species richness).

(4) Teaching and Learning Methods - Evaluation

Delivery:	Face-to-face, with 13 classroom-based lectures	
Use of Information and Communication Technology:	Special emphasis is paid to the description of biomes, using short audio and video material.	
Teaching Methods:	Activity	Semester workload

Lecture	39
Project	30
Non-supervised study	57
Performance evaluation/Exams	3

Course total< 129

Student Performance Evaluation

The student can chose between presenting a subject of his choice in class orally or submitting a written essay. The presentation/essay accounts for 40% of the final grade and the written exam for 60%.

(5) Attached Bibliography

1. Whittaker RJ, Fernandez-Palacios JM (2009). Νησιωτική Βιογεωγραφία - Οικολογία, Εξέλιξη και Διατήρηση (μτφ. Βακάκη Β, Σφενδουράκης Σ). Πανεπιστημιακές Εκδόσεις Κρήτης, Ηράκλειο.

2. Gaston KJ, Spicer JI (2002). Βιοποικιλότητα - Μια εισαγωγή (μτφ. Χιντήρογλου Χ, Βαφείδης Δ). University Studio, Θεσσαλονίκη.
3. Brown J. H. and Lomolino M. V. (1998). Biogeography (second edition). Sinauer Associates, INC. Sunderland, Massachusetts.
4. Myers A. A. and Giller P. S. (1988) Analytical biogeography : an integrated approach to the study of animal and plant distributions. Chapman and Hall, London.
5. Pielou E. C. (1979) Biogeography. Wiley New York.
6. Whittaker Robert (1998) Island biogeography: ecology, evolution, and conservation. Oxford University Press, Oxford.