UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Biogeografia

2223-1-F0601Q100

Aims

Biogeography is a fascinating science of synthesis that combines knowledge from various other scientific fields, even genetics or paleontology, in addition to the physiological and ecological aspects of organisms. Biogeography means studying the distribution of living beings in time and space, also investigating their causes. It is a very intriguing science that allows one to face modern issues and reach various parts of the world both far and near. The student may also be interested in this teaching because it allows one to develop an overview of various disciplines, to further understand the temporal and spatial projections of the various biological mechanisms.

1. Knowledge and understanding. The student will gain knowledge of the distribution patterns of organisms in space and time, and will be able to explain the historical and ecological factors identified as driver of such patterns.
2. Applying knowledge and understanding. The student will be able to apply the knowledge reported under 1. to biogeographical case studies.
3. Making judgements. The student will be able to process the acquired knowledge towards the explanation of the distribution patterns of extinct and extant biota.
4. Communication skills. Use of an appropriate scientific/chemical vocabulary and ability in oral reports.
5. Learning skills. Skills in literature reading and understanding, skills in the elaboration of interconnections among the course-related knowledge and other subjects related to biological evolution and ecology.

Contents

The course will deal with the study of organism distribution in an integrated and multi-level way. The teaching is based on the three main strands of Biogeography, namely ecological biogeography, historical biogeography, systematic biogeography, and also deals with aspects related to evolution, speciation, conservation, the life history, islands and the distribution of organisms.

Detailed program

An introduction to the history of Biogeography. Dispersalism and vicariantism. Species and speciation. Phylogenetic relationships and character status. Phylogeny, phylogeography and hints of genetic mechanisms of evolution. Ecological, historical and systematic Biogeography. Elements of Palaeontology and plate tectonics. Geological eras and periods, with notes of evolution of climate and life. Extinctions. Species range and its dynamics, corridors and filters. Endemism and biodiversity hotspots. Diversity patterns and biogeography of interactions between species. Mainland and aquatic biomes and their adaptations. Biogeographic regions. Chorological categories. The great American biotic interchange. The Messinian crisis. Island biogeography and the features of island biota. Generalised model for the oceanic islands. Biogeography of conservation.

Prerequisites

The basic concepts of Zoology, Botany, Ecology and Biological Evolution are required.
Prerequisites: none

Teaching form

Lectures in classroom supported by multimedia presentations, scientific articles for recent case studies, didactic seminars by experts.

Textbook and teaching resource

The entire teaching material used in the lectures will be made available to students in pdf and via the e-learning platform.

Textbooks (suggested)
Zunino M., Zullini A. 2004. Biogeografia. La dimensione spaziale dell'evoluzione. Casa Editrice Ambrosiana, 374 pp.
Lomolino, M.V., Riddle, B.R. and Whittaker, R.J. 2017. Biogeography, 5th Edition. Oxford University Press, 754 pp.

Semester

Fall semester

Assessment method

Oral test that will begin with the critical discussion of a scientific article, previously agreed between student and lecturer, concerning the topics covered in the teaching. The assessment of the topics included in the teaching program will therefore take place. During the test, the student must demonstrate the ability to connect the various

topics covered in the course to each other. During the oral test, the student must demonstrate the ability to clearly expose the knowledge acquired, demonstrating the complete understanding and showing properties of language.

Office hours

On appointment. Please write to the lecturer directly by email.

Sustainable Development Goals

LIFE ON LAND