UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Ecologia Applicata

1920-3-E1301Q059

Aims

The overall aim of the course is to provide in depth knowledge about ecology and the human impact on ecosystems. The course should also show on the use of ecological knowledge for different sectors in society.
After the course the student should be able to:

Use ecological knowledge in order to understand the distribution of individuals, populations and different distribution of species in ecosystems.

Discuss different theories that may explain biological diversity and threats towards biological diversity.

Understand the importance of different ecosystems services for technology, society and environment.

Explain the ecological background to the most important environmental problems in the world.

Use some common ecological methods and applications.

Contents

Definition of pollution. Air pollution: Sulfur compounds, Carbon monoxides, Nitrogen oxides, Particulate, Lead, Photochemical oxidants, Acid precipitations, ozone hole, Eutrophication, Soil pollution, Removal of contaminants from soil, Evaluation of human health risk, Estimation of Minimum Vital Outflow, problem of invasive species (or aliens), ecotoxicological tests with Daphnia and earthworms, pollution produced by wars, purification plants remediation, Environmental Impact Assessment (EIA).

Detailed program

Definition of pollution. Air pollution: Sulfur compounds, Carbon monoxides, Nitrogen oxides, Particulate, Lead, Photochemical oxidants, Acid precipitations, ozone hole, Eutrophication, Eutrophication stoichiometry, Cause and effects of eutrophication, Eutrophic tendency indices of lakes, localized, widespread and internal loads. Adopting solutions to reduce eutrophication, Exercises: rehabilitation of an eutrophic lake, The problem of eutrophication at sea, Pollution of Lake Orta, Soil pollution, Removal of contaminants from soil, Evaluation of human health risk, Causes of soil pollution for agriculture , Waste, Organic Micropollutants, Global Pollutant Transportation, Bioindicators, Nygaard Quotient, Extended Biotic Index (IBE), Atmospheric Purity Index (IAP), River Functionality Index (IFF), Estimation of Minimum Vital Outflow, problem of invasive species (or aliens), ecotoxicological tests with Daphnia and earthworms, pollution produced by wars, purification plants remediation, Environmental Impact Assessment (EIA), the problem of the Aral lake.

Prerequisites

Basic knowledge in ecology or environmental knowledge

Teaching form

lectures supported by slides and videos

Textbook and teaching resource

Teaching material consists of:

slides available from the e-learning platform

Recommended textbooks: Introduzione all'ecologia applicata. Dalla teoria alla pratica della sostenibilità, Silvana Galassi, Ireneo Ferrari, Pierluigi Viaroli. Edizioni Città Studi.

Slides available on the e-learning platform

videos available on the e-learning Platform

Semester

Second semester

Assessment method

EXAM IS SUBDIVIDED IN 2 PARTS: WRITTEN AND ORAL

Written:

questionnaire of 30 multiple choice questions,

5 possible answers of which only one correct (1 point for each correct answer, 0 points for each wrong answer,= point for each no answer)

Oral exam mode:

questions concerning all that has been explained in class

note: the slides can be used as support at the study but are not sufficient for passing the exam.

Office hours

by appointment, please write an email to the teacher