UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Applied Ecology

2425-3-E1301Q059

Aims

The overall aim of the course is to provide in depth knowledge about ecology and the human impact on ecosystems. The course includes some practical examples to show how applied ecology can be used to face and solve current environmental problems.
After the course the student will be able to:
· Use ecological knowledge in order to understand the distribution of individuals, populations and different distribution of species in ecosystems
· Understand the ecological background to the most important environmental problems
· Apply some common methods for ecological surveys.

Contents

· Definition of pollution
· Description of the main modifications of soil, air and water and of their causes
· Hydrological and morphological alterations of watercourses, ecological flow
· Production, management and treatment of solid wastes
· Management and treatment of urban wastewaters
· Tools and methods to evaluate environmental sustainability
A visit to a municipal wastewater tretment plant will be organized within the course

Detailed program

The first part of the course will provide the fundamental elements of applied ecology: the definition of pollution will allow to face and understand the different environmental problems and to explain phenomena by adequate metrics

and parameters (biological and non biological indicators, quality indices). Case studies wll be presented as the basis to analyze phenomena and processes, to quantify their importance and to evaluate possible solutions.

Specific environmental topics will be then presented, as eutrophication, ecological flow, management of solid wastes and wastewaters.

The last part of the course will concern some methodologies to evaluate the anthropic impact sas Environmental Impact Assessment, Strategic Environmetal Assessment, Life Cycle Assessment, in the frame of environmental sustainability.

Prerequisites

Having passed the exam of Ecology

Teaching form

- 14 lectures of delivered didactics (DE) (2 hours each, for a total of 28 hours) in presence and in streaming, registered and supported by slides which will be uploaded on e-learning platform within each Monday. Meet platform will be used for lectures and the link will be uploaded on the e-learning before the couse starts
- 3 2 h lectures of delivered didactics (6 hours on the whole) in remote
- 2 2 h interactive lectures (DI) in presence
- 4 h of interactive didactics (DI) consisting in a visi to a municipal wastewater treatment plant

Textbook and teaching resource

Teaching material consists of:

· slides available from the e-learning platform

· textbooks: Introduzione all'ecologia applicata. Dalla teoria alla pratica della sostenibilità, Silvana Galassi, Ireneo Ferrari, Pierluigi Viaroli. Edizioni Città Studi; Ecologia applicata. Per un uso consapevole dell'aria, dell'acqua e del suolo,di Roberto Bargagli, Edizioni AMON

Semester

Second semester

Assessment method

Oral exam on the topics of the course

Office hours

Email to valeria.mezzanotte@unimib.it to schedule a meeting

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | CLEAN WATER AND SANITATION | SUSTAINABLE CITIES AND COMMUNITIES | RESPONSIBLE CONSUMPTION AND PRODUCTION | CLIMATE ACTION | LIFE ON LAND