

COURSE DETAIL

SOIL BIOLOGY AND GLOBAL CHANGES

Country

Italy

Host Institution

University of Bologna

Program(s)

University of Bologna

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Biological Sciences

UCEAP Course Number

146

UCEAP Course Suffix**UCEAP Official Title**

SOIL BIOLOGY AND GLOBAL CHANGES

UCEAP Transcript Title

SOIL BIO&GLOBAL CHG

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

Upon completion of the course, the student is able to: Understand the chemical and biological composition of soils and their importance for ecosystem functioning; explain the role of microbial biodiversity in biogeochemical cycles (C, N, P, S) and soil health; analyze the interactions between soil microorganisms, soil fauna and plants; assess the effects of global changes on soil biological functioning; use scientific concepts and terminologies to describe soil biological and biochemical processes and their environmental implications; and relate theoretical knowledge to case studies applied to sustainable management and climate change mitigation.

Topics include:

Soil Biochemistry and Functionality:

- Soil composition: organic and inorganic components.
- Chemical properties: pH, cation/anion exchange capacity, adsorption.
- Microbial enzyme activity and nutrient cycling (C, N, P).
- Role of organic matter in regulating ecosystem services.
- Strategies for soil management and climate resilience.

Soil Biology and Global Changes:

- Microbial biodiversity and interactions with soil fauna.
- Microbial regulation of biogeochemical cycles (C, N, P, S).
- Impacts of climate change, land use and pollution on soil biology.
- Role of soil in greenhouse gas emissions and carbon storage.
- Soil-climate feedback mechanisms.

Language(s) of Instruction

English

Host Institution Course Number

C0202

Host Institution Course Title

SOIL BIOLOGY AND GLOBAL CHANGES

Host Institution Course Details

<https://www.unibo.it/en/study/course-units-transferable-skills-moocs/course-unit...>

Host Institution Campus

BOLOGNA

Host Institution Faculty

Host Institution Degree

L in BIOLOGY OF HUMAN AND ENVIRONMENTAL HEALTH

Host Institution Department

Biological, Geological, and Environmental Sciences

Course Last Reviewed

2025-2026

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