UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

## Biology Teaching

**2223-4-G8501R036-G8501R037M**

### Course title

Biology didactics

### Topics and course structure

Different topics of biology, ecology and environmental education

Particular reference will be devoted to the environmental education and to the didactics of ecology.

### Objectives

Aim of the course is teaching biology techniques, with a special reference to national programs.

A discussion about surfing and choosing news in biology will be proposed.

The ability of connecting the biology contents to evolutionary stories and to ecological relationships is another important aims of this course.

## Methodologies

Lesson, active teaching methodologies, practical laboratory

## Online and offline teaching materials

Slides and supplementary matherials (paper and exercises) discussed in classroom

## Programme and references for attending students

***he course will cover several topics:

Indicatively the blocks of lesson hours (two academic hours at a time) will follow this pattern:*** 1. Biology and ecology in the indications for the curriculum
2. Ecology: definitions and history of ecology
3. Numbers to interpret science: introduction to statistics
4. Anthropocene and environmental crisis
5. Population dynamics and human population dynamics
6. The domestication of plants and animals from an ecological perspective
7. Migration and environmental consequences over time
8. Global warming 1 - Facts and consequences
9. Global warming 2 - Dissemination documentaries
10. Global warming 3 - How to teach it
11. Global warming 4 - Tackling scientific denialism
12. Biodiversity crisis 1 - Past histories and current situation
13. Biodiversity Crisis 2 - How to conserve biodiversity today
14. Biodiversity crisis 3 - Studying and tackling the biodiversity crisis at school

***Bibliography*** 1) Padoa-Schioppa E. *Quaderni e strumenti per l'insegnamento e l'apprendimento della Biologia* Edises

2) Padoa-Schioppa E. *Antropocene - Una nuova epoca per la terra, una grande sfida per l'umanità* - Il Mulino

3. A basic biology/ecology texbook can be useful. Students may use a textbook of high school. During the first lesson I will indicate any university reference texts that are not mandatory in any case.
   4) All students (attending and not attending) must also read one of the following texts (all are also available in ebook format):

- Addio ai ghiacci (P. Wadhams) Bollati Boringhieri
- Metà della terra (E.O. Wilson), Codice
- Spillover - L'evoluzione delle pandemie (Quammen) , Adelphi
- Armi, acciaio e malattie (Diamond), Einaudi

During the lessons will be indicated and provided additional educational materials (articles and slides) that will integrate the preparation of the exam

## Programme and references for non-attending students

Same as attending students

## Assessment methods

**Written and oral examination**

Written part: test (multiple choice questions) and open questions. If the result of the written part is positive, the student will be allowed to the oral part examination.

The oral exam (if the written texts have been passed) will start from the written test, and will then extend to the verification of the knowledge of the whole program and of what has been learned in the laboratories.

## Office hours

Monday at 16.30 after appointment by e-mail

## Programme validity

One academic year

## Course tutors and assistants

Claudia Canedoli

Simone Masin

Noemi Rota

## Sustainable Development Goals

NO POVERTY | ZERO HUNGER | GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY | CLEAN WATER AND SANITATION | AFFORDABLE AND CLEAN ENERGY | DECENT WORK AND ECONOMIC GROWTH | INDUSTRY, INNOVATION AND INFRASTRUCTURE | REDUCED INEQUALITIES | SUSTAINABLE CITIES AND COMMUNITIES | RESPONSIBLE CONSUMPTION AND PRODUCTION | CLIMATE ACTION | LIFE BELOW WATER | LIFE ON LAND | PEACE, JUSTICE AND STRONG INSTITUTIONS | PARTNERSHIPS FOR THE GOALS