

# UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

## **COURSE SYLLABUS**

## **Microbiology**

2021-2-E3201Q108-E3201Q108M

| Aims |
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#### **Contents**

Students of the course will be provided with basic knowledge to understand the **structure and function of microbial cells**, to describe microbial biodiversity, with insights into traditional and innovative methods and specific microbial habitats. In addition, topics related to the analysis of microbial communities, including **systematics**, and the description of specific **microbial genetic elements** will be discussed.

#### **Detailed program**

- "1. The microbiology in the historical context: historical excursus on the main discoveries and leading personalities that have allowed the development of microbiology.
- 2. Microbial evolution. Origins of life on Earth.
- 3. Microbial physiology. Principles of microbial growth. Structures and functions (Bacteria, Archea, Eukarya unicellular)
- 4. Microbial metabolism
- 5. Microbial systematics

- 7. Symbiosis. Principles and examples of different forms of symbiosis involving different categories of microorganisms
- 8. Antibiotics and quorum sensing
- 9. Biogeochemical cycles. General principles and specific description of the cycles of C, N, P and S

#### **Prerequisites**

Prerequisites: basic knowledge of cell biology and organic chemistry

#### **Teaching form**

The methodological approach includes lectures supported by slides and selected videos. 48 hours of lectures (6 cfu). During the COVID-19 restrictions the lessons will be recorded and available online, with some live events that will be planned and communicated on e-learning.

#### **Textbook and teaching resource**

The course will be carried out with the help of slides, videos and scientific articles. All the teaching material projected and the in-depth material is made available to students on the e-learning platform. Suggested textbooks: Biologia dei Microrganismi (Dehò-Galli – Casa Editrice Ambrosiana); Brock – Biologia dei Microrganismi (Madigan, Martinko, Stahl, Clark – Casa Editrice PEARSON)

#### Semester

Second semester

#### **Assessment method**

Exams will be carried out by means of a written test at the end of the course. During the test, the student will have to carry out one question that requires a broad and articulated answer. Three more specific questions that require concise but comprehensive answers will be provided. The time available to carry out the written test is 2 hours and 30 minutes. An oral test follows, during which the elements of weakness identified during the written test are studied in depth.

During the Covid-19 restrictions the written exam will be carried out remotely and the oral exams will be exclusively through the WebEx platform. A public link will be posted e-learning page for the access of virtual public.

### Office hours

Upon request: andrea.franzetti@unimib.it