



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Microbiology

1920-2-E3201Q108-E3201Q108M

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#### 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

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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.

## **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 2 questions that provide a broad and articulated answer. The first of the two questions will always focus on metabolism. Four 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.

## **Office hours**

Upon request: [andrea.franzetti@unimib.it](mailto:andrea.franzetti@unimib.it)

