



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Molecular Biology 1

2324-1-H4101D004-H4101D013M

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#### Aims

The course will provide the essential theoretical knowledge of molecular biology, also focusing on the possible future application in the medical field.

#### Contents

Structure and function of the most important cellular macromolecules; transcription and RNA processing; molecular biology techniques used in research and in molecular diagnostics.

#### Detailed program

Chemical composition and molecular organization of the cell – water, carbohydrates, lipids, proteins and nucleic acids. Identification of the chemical compound carrying the genetic information – Molecular basis of inheritance – DNA replication. Telomerases – Mechanisms of DNA repair. Correlation with human diseases, aging and cancer. - RNA, structure and function – Transcription and RNA maturation – The genetic code, and its biological implication (redundancy, frameshift). -Molecular genetic tools (restriction enzymes, vectors, Southern blotting, PCR, sequencing, microarrays). Molecular cloning.

#### Prerequisites

Basic sciences (chemistry, physics)

## Teaching form

Lectures

## Textbook and teaching resource

G. De Leo, E. Ginelli, S. Fasano. BIOLOGIA E GENETICA, EdiSES, 2013

other textbooks:

E.Ginelli, M.Malcovati. MOLECOLE, CELLULE E ORGANISMI, EdiSES, 2016

H. Lodish, A. Berk, S.L. Zipursky, P. Matsudaira, D. Baltimore, J. Darnell. MOLECULAR CELL BIOLOGY, FREEMAN, 2016.

## Semester

Second semester

## Assessment method

See information provided for the whole course

## Office hours

By appointment

## Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY

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