UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Didattica e metodologie didattiche e laboratoriali della Biologia: processi biologici e biochimici

2324-A50-FIA50003

Title

TEACHING COURSE AND TEACHING AND LABORATORY METHODOLOGIES OF BIOLOGY: BIOLOGICAL AND BIOCHEMICAL PROCESSES

Teacher

Prof. Ferdinando Chiaradonna

Language

Italian

Short description

The general aim of the course is to promote greater awareness of teaching processes in the field of biochemistry and biological processes in order to highlight the need to promote an understanding based on experience and not on the mere memorization of notions.
In particular, the teaching intends, through the discussion of some fundamental concepts of biochemistry and biological processes, to increase students' awareness of the central role that they assume during the learning

process, in imparting notions which, based on the indications national and guidelines, must bring knowledge back towards their direct application in understanding the complexity of the real world.

PLAN
The course is structured on the presentation of examples of educational paths within the following topics:
-The structure of DNA
-DNA replication
-TP rotein synthesis
-Gene regulation
-Genetic code

METHODOLOGIES AND TOOLS
Different teaching methodologies will be used in order to understand and structure simple or more complex educational research in order to improve the effectiveness of teaching interventions in the field of biochemistry and biological processes.

EXAM BIBLIOGRAPHY
In-depth materials will be made available on the course's e-learning platform. A specific bibliography, for those who wish to delve deeper into the topics covered, will be made available to interested students.

Some recommended texts not mandatory
Biologia di Sadava, Hillis, Heller, Hacker – Zanichelli (2019): volume 1 La cellula; volume 2 L'ereditarietà e il genoma; volume 3 L'evoluzione e la biodiversità; volume 4 L'evoluzione e la biodiversità; volume 5 La biologia degli animali; volume 6 L'ecologia.

- Fondamenti di Biochimica di Voet D et al., - Zanichelli (2022)
- Metodologie biochimiche e biomolecolari di Mauro Maccarrone- Zanichelli (2022)
- La didattica delle materie STEM – Insegnare discipline scientifiche nella scuola secondaria di E. Barbuto – EdiSES (2022)
- Metodi e strumenti per l'insegnamento e l'apprendimento della biologia di Padoa Schioppa – EdiSES (2015)
- Doris R. Helms. Invito al laboratorio di biologia. Per le Scuole superiori. Zanichelli
- C. Grazioli, C. Gritti, P. Plevani, G. Viale. Studenti in laboratorio: esperimenti di biologia molecolare e bioinformatica. Zanichelli
- Paola Bortolon. Costruire le competenze di scienze. 50 prove per l'allenamento e la verifica. Per le Scuole superiori. Zanichelli

Target audience

University and academic course for initial training of 1st and 2nd level secondary school teachers
(60, 30 CFU) A50 - Natural, chemical and biological sciences

Maximum number of participans

Assessment method

A minimum attendance of 70% is required to be admitted to the final test of the A50

CFU / Hours

2 CFU
12 hours
Streaming On-Line

Teaching period and mode

July 27-30

Sustainable Development Goals

QUALITY EDUCATION