



COURSE DESCRIPTION CELL AND MOLECULAR BIOLOG

SSD: BIOLOGIA MOLECOLARE (BIO/11)

DEGREE PROGRAMME: BIOINGEGNERIA INDUSTRIALE (P16)
ACADEMIC YEAR 2024/2025

COURSE DESCRIPTION

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GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: U1582 - BIOCHEMISTRY, CELL AND MOLECULAR BIOLOGY
MODULE: U1581 - CELL AND MOLECULAR BIOLOGY
TEACHING LANGUAGE: INGLESE
CHANNEL: FG A-Z
YEAR OF THE DEGREE PROGRAMME: I
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I
CFU: 6

REQUIRED PRELIMINARY COURSES

N/A

PREREQUISITES

N/A

LEARNING GOALS

- Understand the basic biological bioenergetic processes
- Understand the structure and function of the cell
- Understand the nuclear and cytoplasmic activities
- Understand the structure and function of nucleic acids, DNA and RNA
- Understand the central dogma of molecular biology (replication, transcription, translation)
- Understand the logic behind simple molecular biology experiments
- Understand cell homeostasis (cell cycle, cell death, cell communication)

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding

To Understand the basic structure of the cell and its compartments

To Understand the molecular events occurring in the cell

To Understand the basic techniques of Molecular and Cell Biology

Applying knowledge and understanding

To be able to critically evaluate manuscripts of Molecular and Cell Biology

To be able to design experiments involving the use of cell or molecular biology tools

COURSE CONTENT/SYLLABUS

- Introduction to cell and molecular biology
- Basic Taxonomy, Prokaryotes, Eukaryotes
- Cellular membranes
- Cell adhesion, extracellular Matrix, cytoskeleton
- Intracellular compartments
- DNA, chromosomes, genomes
- DNA replication, repair, recombination
- Analyzing and manipulating DNA
- DNA transcription to RNA
- RNA translation to Proteins

READINGS/BIBLIOGRAPHY

- Introduction to cell and molecular biology
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TEACHING METHODS OF THE COURSE (OR MODULE)

Frontal Lessons

Periodic lab activities

EXAMINATION/EVALUATION CRITERIA

a) Exam type

Written

- Oral
- Project discussion
- Other

In case of a written exam, questions refer to

- Multiple choice answers
- Open answers
- Numerical exercises

b) Evaluation pattern