UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Basic Biomedical Sciences

2526-1-I0201D127

Aims

Ability to apply knowledge and understanding

Ability to correlate structure and function
Ability to contextualize notions of biology, genetics, biochemistry, histology and pathology to everyday life and in the health field
Ability to critically evaluate the connections between the subjects of the various modules.

Making judgements

Ability to independently evaluate the methodological coherence of problem solving, critically interpret, among several possible options, the most suitable approach to the problem. The exam method, with open questions, stimulates independence of judgment and critical thinking in the application of the knowledge learned.

Communication skills
The course promotes the development of communication skills through classroom discussion. The exam includes open questions that require the use of appropriate technical language and the ability to clearly and coherently convey the results obtained.

Learning skills
The course provides a solid theoretical foundation and allows the development of an active and autonomous study methodology, also useful in view of subsequent courses with greater specialization, as well as in future professional or research practice.

Contents

The course aims to provide basic knowledge on the following topics:

The cell. Organization of the cellular space. The cytoplasmic membrane. The mitochondrion. Molecular mechanisms essential to cell life. Functional organization of the different tissues as basic components of the organs. Biological significance of macromolecules and their role in organisms. Energy metabolism and nutritional aspects as a source of energy in everyday life and in physical exercise; digestive processes. Biochemistry of muscle, myocardium and connective tissue. CNS biochemistry. Bioenergetics of muscle contraction. Caloric value, caloric equivalent, the fuel of choice in muscle work. Different exergonic systems in physical exercise (aerobic and anaerobic physical activity). The chromosomes. Cell division. Errors of chromosomal mechanics. Fertilization. Heredity and Mendel's Laws. The transmission of genes. Human karyotype. Basic physio-pathological notions (homeostasis, disease, etiology, pathogenesis ...), human immune mechanisms. Cell and tissue damage. Inflammation and tissue repair. Mechanisms underlying tumor development.
Arguments concerning gender medicine will be considered in some module.

Detailed program

See the content in the Syllabus of each teaching module

Prerequisites

None

Teaching form

Lectures.

Lessons will be in attendance.

Although this course is held in Italian, Erasmus students can ask to use books written in English

Textbook and teaching resource

See syllabus of each teaching module

Semester

First year, I semester

Assessment method

Test with multiple choice (15 quiz of Biology, 15 of Histology, 15 of Biochemistry, 15 of Biochemistry II, 15 of Genetics, 15 of Pathology) and an open ended question of Pathology. The exam will be aimed at evaluating the acquisition of all the notions reported in the detailed program of each module. The correctness and consistency of the answers with respect to the question requested will be assessed.

Final oral exam at the discretion of the teacher or on the student's proposal regarding the project

Although this course is held in Italian, for Erasmus students, students can take the exam in English if they wish to do so.

Office hours

by appointment (email request)

Sustainable Development Goals

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