UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Biochemistry

2122-1-I0303D002-I0303D006M

Aims

Students must be able:

-to explain structural characteristic of protein and the structure-function ratio

-to describe the role of enzyme in the biochemical reactions, with particular attention to enzymatic kinetic and regulation

-to define bioenergetics concepts, explaining respiratory chain function

-to describe sugars, lipids and proteins mechanisms of digestion and absorption

-to describe the metabolism of glucose, amino acid and fatty acid

-to describe cholesterol, ketone bodies, purines and pyrimidines, hormones metabolism and hormonal regulation of metabolism

-to describe calcium metabolism.

Contents

The course aims to provide the student with: the knowledge of general and organic chemistry for the study of compounds in biological systems; the knowledge of the main metabolic pathways and biochemical cellular mechanisms; the knowledge of the structure and function of pro/eukaryotic cells, thanks to the tools provided by the integration of the most current and advanced concepts of molecular and cellular biology; the basis of formal human genetics, introducing the student to the most basic laboratory techniques used for the diagnostic approach and research of hereditary disease

Detailed program

BIOCHEMISTRY

· Living matter in general.

· Proteins: structure-function ratio, plasmatic protein.

· Biochemical reactions, enzymes, enzymatic kinetic and regulation.

· Bioenergetics, respiratory chain, oxidative phosphorylation.

· Digestion, absorption of sugars, lipids and proteins.

· Glucose, amino acid and fatty acid metabolism.

· Cholesterol, ketone bodies, purines and pyrimidines, hormones metabolism, and hormonal regulation of metabolism.

· Calcium metabolism.

Prerequisites

Teaching form

Lectures

Textbook and teaching resource

Siliprandi & Tettamanti: Biochimica medica" PICCIN

M. Stefani, N. Taddei: Chimica Biochimica e Biologia Applicata Zanichelli.

R. Roberti, G. Alunni Bistocchi: Elementi di Chimica e Biochimica McGrawHil

Semester

First semester

Assessment method

Being an integrated course, the evaluation Will cover all four modules.

The evaluation will consist of a written test that will be used to ascertain the level of knowledge and ability to understand the topics covered during the course and to be able to solve problems. Therefore the student will have to answer:

Multiple choice test (10 quizzes concerning the topics of **Biochemistry**, 15 of **Biology**, 10 of **Chemistry** and 10 of **Medical Genetics**)

Oral examination will be required at professor's discretion (discussion of the written test). The oral test will serve to clarify critical issues emerged from the written test and to verify the communication skills of the student and will focus on the topics covered by the written test

Office hours

By appointment required by mai