
COURSE: BIOCHEMISTRY

ACADEMIC YEAR: 2018-2019

TYPE OF EDUCATIONAL ACTIVITY: Basic

TEACHER: Prof Faustino Bisaccia

e-mail: **faustino.bisaccia@unibas.it**

website:

phone: **0971205513**mobile (optional):

Language: **italian**

ECTS: **10** (9 lessons and
1 tutorials/practice)n. of hours: **84** (**72** lessons
and **12** tutorials/practice)Campus: **Potenza**Dept./School: **Department of
Sciences**Program: **Pharmacy (LM-13)**Semester: **II**
(from **01 March 2019**
to **20 June 2019**)

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The main goal is to explain biochemical phenomena from the chemistry point of view. In addition the following knowledge will be pursued:

- Principles of biochemistry;
- Metabolic processes and regulation;
- Basic knowledge of biomolecules.

Main skills will be:

- Able to relate the biochemical processes in different human organs;
 - Able to analyze all metabolic changes;
 - Able to describe the main biochemical processes.
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PRE-REQUIREMENTS

Knowledge of Organic Chemistry and Animal Biology are required

SYLLABUS

Introduction to biochemistry (biomolecules). Structure and function of the proteins; aminoacid classification, peptidic bound; denaturation and re-naturation; Protein oxygen transporter: hemoglobin and mioglobin. Enzymes, mechanism of action, kinetics; co-enzymes e co-factors, classification. Enzymatic inhibition Structure and function of the carbohydrates; Structure and function of the lipids. Structure and function of the nucleis acids. Structure and function of the biological membranes. Membrane proteins, receptors and transporters. Signal Transduction. (30 hours +12 hours of lab.)

Metabolism and bioenergetics; Carbohydrates metabolism, glycolysis; pyruvate metabolism: lactic and alcoholic fermentation; glycogen biosynthesis and degradation, gluconeogenesis; glycogen metabolism regulation by hormones. Citric acid cycle and anaplerotic reaction. Oxidative phosphorylation; respiratory chain and electrochemical gradients; ATP-synthase complex. Lipidic metabolism; biosynthesis of chetonic bodies. Fatty acid and cholesterol biosynthesis. Triglycerides. Membrane phospholipids. Protein degradation and aminoacid metabolism; deamination, transamination, decarboxylation; Urea cycle; Synthesis and degradation of heme (38 hours)

Photosynthesis (4 hours)

TEACHING METHODS

The organization of course is: 72 h lesson and 12h practice/laboratory. The teaching instruments will be: blackboard, computer and video to powerpoint presentations

EVALUATION METHODS

The exam is oral and consists in the evaluation of theoretical knowledge of the student together with the ability to link different topics of the course. Also the knowledge of laboratory practices made by the student will be evaluated. The final grade is expressed in thirtieths

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- Lehniger di David L.Nelson, Michael M. Cox Zanichelli_
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INTERACTION WITH STUDENTS

The teacher receives students in his office every week Monday from 4 p.m at 6 p.m or Friday from 3 p.m at 5 p.m, following email contact: faustino.bisaccia@unibas.it

EXAMINATION SESSIONS (FORECAST)¹

The last Thursday of each month except the months of april, august, and november

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

¹Subject to possible changes: check the web site of the Teacher or the Department/School for updates.