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**COURSE: BIOCHEMISTRY**

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**ACADEMIC YEAR: 2017-2018**

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**TYPE OF EDUCATIONAL ACTIVITY: Basic**

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**TEACHER: Prof Faustino Bisaccia**

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

website:

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

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Language: **italian**

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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 5 March 2018**  
**to 31 June 2018**)

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**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

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**SYLLABUS**

Introduction to biochemistry (biomolecules). Structure and function of the proteins; aminoacid classification, peptidic bond; denaturation and re-naturation; Protein oxygen transporter: hemoglobin and myoglobin. Enzymes, mechanism of action, kinetics; co-enzymes e co-factors, classification. Enzymatic inhibition Structure and function of the carbohydrates. (30 ore+4 ore es/lab)

Structure and function of the lipids. Structure and function of the nucleic acids. Structure and function of the biological membranes. Membrane proteins, receptors and transporters. Signal Transduction. Metabolism and bioenergetics. (12 ore+4 ore es/lab)

Carbohydrates metabolism, glycolysis; pyruvate metabolism: lactic and alcoholic fermentation; glycogen biosynthesis and degradation, gluconeogenesis; glycogen metabolism regulation by hormones. Tricarbic acid cycle. Oxidative phosphorylation; respiratory chain and electrochemical gradients; ATP-synthase complex. Lipidic metabolism; ketone bodies. Fatty acid and cholesterol biosynthesis. Triglycerides. Membrane phospholipids. Protein degradation and aminoacid metabolism; deamination, transamination, decarboxylation. (24 ore+4 ore es/lab)

Urea cycle. Photosynthesis (6 ore)

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**TEACHING METHODS**

The organization of course is: 72 h lesson and 24h practice/laboratory. The teaching instruments will be: blackboard, computer and video to powerpoint presentations

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**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.

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**TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL**

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○ Lehninger di David L.Nelson, Michael M. Cox Zanichelli\_

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**INTERACTION WITH STUDENTS**

The teacher receives students all days in his office following email contact: faustino.bisaccia@unibas.it

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**EXAMINATION SESSIONS (FORECAST)<sup>1</sup>**

12/01/2018, 09/02/2018, 09/03/2018, 25/05/2018, 22/06/2018, 20/07/2018, 14/09/2018, 12/10/2018, 14/12/2018

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**SEMINARS BY EXTERNAL EXPERTS**    YES     NO

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**FURTHER INFORMATION**

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