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**COURSE: BIOCHEMISTRY**

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**ACADEMIC YEAR: 2018-2019**

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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 **02 March 2020**  
to **31 May-20 June**  
**2020**)

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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:

Knowledge and understanding:

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

Applying knowledge and understanding / main skills:

- Being able to relate the biochemical processes in different human organs;
  - Being able to analyze all metabolic changes;
  - Being 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 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)**

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**TEACHING METHODS**The organization of course is: 72 h lesson and 12h practice/laboratory. The teaching instruments will be: blackboard,

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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. The final grade is expressed in thirtieths and a minimum of 18/30 is needed to pass the course.

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**TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL**

- Lehninger 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](mailto:faustino.bisaccia@unibas.it)

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

30-01-2020, 17/02/2020, 26/03/2020, 28/05/2020, 22/06/2020, 20/07/2020, 21/09/2020, 19/10/2020, 17/12/2020

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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.