

## Biochemistry (Ist Year of study, IInd Semester)

Credit value (ECTS) 5

### Course category

Fundamental (Imposed)

### Course holder:

Assist. Prof. Dr. Antoanela PATRAS

### Discipline objectives (course and practical works)

The course aims to make students acquire knowledge on the main types of biochemical compounds, distribution and importance in plants, physical and chemical properties.

Practical work aims to familiarize students with the working techniques and principles in biochemical laboratories and the correct application of analysis methods of main compounds.

### Contents (syllabus)

Course (chapters/subchapters)
<b>Introduction to Biochemistry</b>
Fundamental bioconstituents: bioelements and biomolecules
<b>Glucids</b> <b>Monoglucids.</b> Structure, isomers, examples, properties. <b>Oligoglucids.</b> Classification. Examples. Properties. <b>Poliglucids.</b>
<b>Lipids</b> General information. Structure. Classification Lipid precursors <b>Simple lipids</b> <b>Complex lipids</b>
<b>Protids</b> General information. Classification. <b>Aminoacids</b> <b>Peptides</b> <b>Proteins</b>
<b>Vitamins</b> (hydrosolubles, liposolubles)
<b>Enzymes.</b> General information. Characteristics. Mechanism of action. Classification
<b>Phytohormones</b> Generalities. Classification. Examples.
<b>Secondary biomolecules.</b> General information. Examples. Importance.
<b>Metabolism- fundamentals</b>

### Practical works

1. General information concerning biochemical analysis. Determination of dry weight and moisture.
2. Determination of ash content
3. Identification of monoglucids
4. Diglucids – analyse of chemical reducing character
5. Qualitative analyse of polyglucids
6. Determination of reducing glucids
7. Lipids. Soxhlet extraction
8. Acidity index of lipids
9. Qualitative and quantitative analysis of aminoacids
10. Proteins identification by color reactions
11. Proteins precipitation
12. Vitamin C analysis
13. Analysis of enzymatic activity
14. Final laboratory evaluation

### Bibliography

Artenie, Vlad - Biochimie, Editura Universității "Al. I. Cuza" Iași, 1991  
 Koolman, J., K.-H- Röhm –Biochimie - atlas de poche, Médecine-Sciences, Flammarion, 1999;  
 Lupea, Alfa Xenia – Biochimie, Fundamente, Ed. Academiei Române, 2007  
 Neamțu, G., Gh.Cîmpeanu, Carmen Socaciu – Biochimie vegetală vol. 1 și 2, Ed. did. și ped. 1995,  
 Segal R. – Biochimie, Editura Alma, Galați, 2000  
 Savu, Maria, Iulia Afusoe, Antoanela Nechita Patraș, Alina Trofin, Ioan Marcu – Biochimie vegetală, lucrări practice, U.Ș.A.M.V. Iași, 2000;  
 Artenie Vlad, Tănase Elvira – Practicum de biochimie generală, Univ. „Alexandru Ioan Cuza”, Iași, 1981

### Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Oral examination	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	40%

### Contact

**Assist. Prof. Dr. Antoanela PATRAS**

Department of Exact Sciences - UASVM Iași  
 3, Mihail Sadoveanu Alley, Iași, 700490, Romania  
 phone: 0040 232 407551  
 e-mail: [apatras@uaiasi.ro](mailto:apatras@uaiasi.ro)