

## Organic chemistry (1st Year of study, 1st Semester)

Credit value (ECTS) 5

### Course category

Fundamental (Compulsory)

### Course holder:

Assist. Prof. PhD. Antoanela PATRAS

### Discipline objectives (course and practical works)

The aim of the course is to have students acquire knowledge on the main types of organic compounds, distribution and importance, physical and chemical properties.

The practical training seek to familiarize students with the working techniques in the chemical laboratories and the correct application of analytical methods of the main compounds.

### Contents (syllabus)

Course (chapters/subchapters)
<b>Introduction to organic chemistry</b> Importance of organic chemistry Elemental composition and structure of organic molecules. Classification of organic compounds
<b>Hydrocarbons</b> Saturated hydrocarbons. Structure. Properties. Representatives. Unsaturated hydrocarbons. Structure. Isomers. Properties. Representatives. Aromatic hydrocarbons. Classification. Structure. Isomers. Properties. Representatives.
<b>Hydroxyl compounds.</b> Alcohols. Examples, structure, properties. Sterols. Classification. Examples. Phenols. Structure, properties, natural representatives. Enols.
<b>Ethers.</b> Structure. Preparation. Properties. Representatives
<b>Amines.</b> Structure. Properties. Food representatives
<b>Carbonyl compounds.</b> Classification. Structure. Properties. Representatives.
<b>Carboxylic acids.</b> Classification. Structure. Physical and chemical properties. Food representatives
<b>Functional derivatives of carboxylic acids.</b> The main classes. Examples. <b>Esters.</b> Structure. Synthesis. Properties. Natural esters. Synthetic Esters. <b>Amides.</b> Structure. Properties.
<b>Organic compounds with mixed functions</b> Amino acids.
<b>Heterocyclic compounds.</b> Classification. Examples. Importance in nature.

<b>Practicum</b>
General information concerning chemical analysis of organic compounds. Isolation and purification of organic compounds.
Qualitative elemental analysis of organic compounds.
Quantitative elemental analysis of organic compounds.
Determination of the molecular formula and the structure of organic compounds
Double bond reactions (addition, oxidation) and aromatic ring reactions
Alcohols. Demonstration of the acidic character. Alkoxide synthesis. Oxidation.
Other specific reactions of hydroxyl compounds.
Amines - chemical properties (highlighting of basic character, acylation).
Carbonylic compounds. Colour reactions. Other specific reactions of aldehydes.
Organic acids. Chemical reactions.
Esters. Synthesis and specific chemical reactions
Organic compounds with mixed functions. Identification and determination of amino acids.
Spectrophotometric analysis of anthocyanin pigments
Final laboratory test.

### **Bibliography**

Vicaș S. I. – Chimie organică și biochimie, Academic Pres, 2008

Iordache F., Iordache A., Costea I., Bidulescu A. - Indrumar de laborator chimie organică, Printech, 2000;

Ifrim S. – Chimie generală, Ed. Didactică și Pedagogică, București, 2003

Afusoae I., Savu M., Patraș A. - Chimie lucrări practice, USAMV Iasi, 1996;

### **Evaluation**

<b>Evaluation form</b>	<b>Evaluation Methods</b>	<b>Percentage of the final grade</b>
Exam	Writing - test examination	60%
Appreciation of the activity during the semester	Oral and practical assessment during the semester, verification tests and final laboratory colloquium.	40%

### **Contact**

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