

Name of discipline	Organic chemistry		
Type	Compulsory,	Credits	9
Academic year	II		Semester III-IV
Number of hours	Course	45	Practice/laboratory work 90
	Seminar	-	Self-training 135
Component	Fundamental		
Course holder	Cheptănaru Constantin PhD, associate profesor		
Location	Chisinau, 66 Malina Mica street, building 2		
Conditionings and prerequisites of:	<p>Curriculum - general and inorganic chemistry, analytical chemistry, physical chemistry.</p> <p>Competences - for the good acquisition of the university course of organic chemistry, the students must have the capacity to understand, to learn and to apply practically the theoretical notions. Students must have the ability to make correlations between the notions taught, between the course and the practical works, as well as interdisciplinary. Thorough knowledge in Chemistry is required, obtained in pre-university institutions: electronic structure of bioelements, theory of structure of organic compounds, structural isomerism, types of chemical bonds in organic compounds, nomenclature bases and classification of organic compounds.</p>		
	<p>Competences: basic digital skills (internet use, document processing, use of text editors, electronic whiteboards and presentation applications), communication skills and teamwork.</p>		
Mission of the discipline	<p>The course of organic chemistry aims to form the concepts of chemical structure - functions - reactivity based on the approach of the notions of chemical bonding, hybridization, geometry of molecules, electron displacements by field effect, inductive and conjugation effect, etc. At the same time, the aim is to form systemic knowledge, at a contemporary scientific level, their use in structural analysis, in explaining chemical behavior, explaining the mechanisms of reaction given the chemical behavior of substances. Accumulation of specific skills in organic chemistry in the assimilation of specialized notions, in explaining the physical, chemical and biological properties of medicinal substances and other components of a drug. Creating skills for the correct use of laboratory methods and techniques specific to pharmaceutical disciplines: synthesis methods, separation methods, purification methods, physico-chemical analysis methods.</p>		
Overview of the topics	<p>The basis of organic compounds structure; Classification and nomenclature of organic compounds. Systematic nomenclature rules. Reciprocal influence of atoms in organic molecules. The spatial structure and stereoisomerism of organic compounds. Stereoisomeric relations-activity of natural compounds and chiral drugs.</p> <p>Acidic and basic properties of organic compounds. Particularities of the manifestation of acidity and basicity of medicinal substances. The reactive capacity of unsaturated compounds and the particularities of the reactivity of conjugated systems.</p>		

	<p>Reactive capacity of homofunctional organic compounds containing halogen, hydroxyl groups. Reactive capacity of carbonyl and carboxylic compounds, amines and diazo derivatives.</p> <p>Heterofunctional acids and carbohydrates.</p> <p>Pentaatomic, hexaatomic and fused ring heterocyclic compounds.</p> <p>Nucleosides, nucleotides, nucleic acids, hydrolysable lipids (triacylglycerides, complex lipids) and non-hydrolyzables (terpenoids and steroids).</p>
Outcomes	<ul style="list-style-type: none"> • To know and understand the notions of general organic chemistry necessary for the study of classes of organic compounds. • Acquiring, understanding and using notions related to the classification, structure, name, acquisition and physico-chemical behavior of the main classes of organic compounds. • Ability to use theoretical notions in structural analysis, explaining chemical behavior, explaining reaction mechanisms and predicting chemical behavior of substances. • Understanding the importance of organic chemistry in acquiring specialized notions in explaining the physical, chemical and biological properties of drug substances and other components of a drug. • The importance of knowing physical and chemical properties for understanding and predicting the stability of pharmaceuticals. • Knowledge of the theoretical and practical notions needed for the synthesis, separation, purification and analysis of compounds in the main classes of organic compounds. • Ability to use working techniques for the synthesis and analysis of organic substances. • Ability to use the notions learned in organic chemistry laboratories in the synthesis and characterization of organic substances.
Practical skills	<ul style="list-style-type: none"> • To determine the class and group of organic compounds according to the classification rules. The structural formulas according to systematic nomenclature. • To represent graphically the structural, stereochemical and conformational formulas of organic compounds, types of stereoisomers. • To determine the acidic and basic sites and to appreciate and compare the acidity of organic compounds. • To determine and describe the mechanisms of organic reactions to forecast the direction and outcome organic transformations. • To apply the qualitative analysis identification reactions of organic combinations. • To carry out the synthesis of a given organic compound from the documentation till the obtaining of a pure compound and its characteristic.
Assessment form	Exam – semester III. Exam – semester IV.