

Name of discipline	<b>Stereoisomerism and action of medicines</b>		
Type	<b>Optional discipline</b>	Credits	2
Academic year	II		Semester IV
Number of hours	Course	15	Practice/laboratory work -
	Seminar	30	Self-training 15
Component	Fundamental		
Course holder	Cheptănaru Constantin PhD, associate profesor		
Location	Chisinau Municipality, Malina Mică Street, 66.		
Conditionings and prerequisites of:	<p>Curriculum - organic chemistry.</p> <p>Skills - for the good grasp of the course, students must have the ability to understand, to learn and apply the theoretical notions practically;</p> <p>Students should have the ability to make correlations between taught notions, between course and both practical and interdisciplinary. Thorough knowledge of the organic chemistry: structural isomerism, configurational isomerism and conformational isomerism of organic compounds.</p> <p>Student of the II<sup>nd</sup>. year should possess:</p> <ul style="list-style-type: none"> <li>• knowledge of the language of instruction;</li> <li>• digital competences (use of the Internet, document processing, electronic tables and presentations, use of graphic programs);</li> <li>• ability to communicate and work in team;</li> </ul> <p>qualities - tolerance, compassion, autonomy.</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 purpose of the discipline <i>Stereoisomerism and action of medicines</i> is to substantiate the notions of stereoisomerism, acquiring knowledge about the importance of pure enantiomers of pharmaceuticals, compared to racemic mixtures in treating various diseases, knowledge that complements the professional training of future pharmacists.</p>		
Overview of the topics	<p>Classification and definition of terminology used in drug stereochemistry (isomerism, enantiomerism, diastereoisomerism, epimeria, racemates and racemization, “meso” forms, chiral inversion, dystomer, eutomer, enantioselective synthesis).</p> <p>The importance of chirality in current pharmacology and therapeutics.</p> <p>Ways of characterization of optical isomers (after optical activity, relative configuration and absolute configuration of the chirality center. The <i>Cahn - Ingold - Prelog</i> Convention (the order of priority of chirality center substitutes, examples). The <i>Fischer</i> projection for the representation of the relative configuration. The relation between the attribution of the character <i>S-R</i> (according to the <i>Cahn - Ingold - Prelog</i> convention) and <i>D-L</i> (according to the <i>Fischer</i> projection).</p>		

	<p>Implications of stereochemistry in different therapeutic classes: Hypnotic sedatives, general and local anesthetics, opioid analgesics, antidepressants, antiparkinsonian, nonsteroidal anti-inflammatory drugs, bronchodilators and antihistamines, antiulcer drugs, preparations used in cardiology, and renergics, antifungals.</p> <p>Aspects regarding the discovery of new chiral drugs. Enantioselective obtaining of chiral drugs and/or separation of enantiomers.</p>
Outcomes	<ul style="list-style-type: none"> <li>• Understanding the concept of chirality and its importance in medicine.</li> <li>• Knowledge of specific aspects of drug stereochemistry.</li> <li>• Knowledge of the enantiodiscriminatory action of drugs and the enantioselective toxicity of chiral drugs.</li> <li>• Knowledge of methods for enantioselective obtaining of chiral drugs.</li> </ul>
Purchased practical tools	<ul style="list-style-type: none"> <li>• Identify the membership of stereoisomers in stereochemical series D and L, or R and S.</li> <li>• Establish the specification of the relative configuration and the absolute configuration of stereoisomers.</li> <li>• To be able to correctly analyze the way of characterizing the optical isomers according to the optical activity, relative configuration and absolute configuration of the chirality center.</li> <li>• Appreciate the importance of stereoisomerism in the context of integration with profile disciplines</li> <li>• To determine the importance of pure enantiomers of medicinal substances, compared to racemic mixtures, on their pharmacological activity.</li> <li>•</li> </ul>
Assessment form	Examin