

1.	Subject	<b>PHARMACOLOGY</b>		
2.	Code	OM 323		
3.	Study Program	General Medicine		
4.	Institution (Unit, Institute, Chair, Department)	Ss Cyril and Methodius University, Medical Faculty, Department of Anatomy		
5.	Degree of education (first or second cycle)	Integrated studies		
6.	Study year/semester	Third/ (VI)	7. Number of credits	7
8.	<b>Responsible teacher</b>	Prof. Dimce Zafirov, PhD, MD		
9.	Preconditions	Obtained loans for VI semester		
10.	Teaching goals: <ul style="list-style-type: none"> <li>• Introduction to pharmacology as a subject and its aims;</li> <li>• Introduction to pharmacodynamic characteristics of drugs, how a drug affects an organism,</li> </ul>			

	modes of action of drugs upon the body. <ul style="list-style-type: none"> <li>• Achieving basic knowledge of pharmacokinetic, the branch of pharmacology concerned with the movement of drugs within the body and the importance of knowing the pharmacokinetic properties of drugs.</li> <li>• Acquiring basic knowledge about toxicology and toxicological research as well as their importance in the development of drugs</li> <li>• Treatment of addiction and drug abuse</li> <li>• Understanding the basic principles of pharmacogenetics</li> <li>• Acquiring knowledge of special pharmacology, in meaning of pharmacodynamic groups and their therapeutic areas.</li> <li>• Students will learn how to prescribe medicines and will gain understanding of all pharmaceutical dosage forms.</li> </ul>
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11.	<p>Brief content:</p> <p><b>Theoretical classes:</b></p> <ul style="list-style-type: none"> <li>• Introduction to pharmacology.</li> <li>• Pharmacodynamia.</li> <li>• Pharmacokinetics</li> <li>• Drug addiction</li> <li>• Pharmacogenetics</li> <li>• Pharmacology of central nervous system, psychopharmacology, vegetative nervous system, respiratory system, cardiovascular system, hematology, digestive system, urinary system, hormones, vitamins, antimicrobial drugs.</li> <li>• Toxicology (separation of toxins, general principles of poisoning, treatment and specific treatment of poisoning).</li> </ul> <p><b>Practical classes:</b></p> <ul style="list-style-type: none"> <li>• Pharmacography</li> <li>• Pharmaceutical dosage forms</li> <li>• Demonstrating experimental models: <i>in vitro</i> and <i>in vivo</i>.</li> </ul>			
12.	<p><b>Methods of studying:</b></p> <p>Interactive teaching during lectures, practical trainings and seminars.</p>			
13.	Total available time:		210 classes	
14.	Organization of the course		105 classes - theoretical course, practical course 105 classes - home individual learning	
15.	Forms of teaching activities	15.1.	Theoretical course	55 classes
		15.2.	Practical course (laboratory, clinical), seminars, group work	50 classes
16.	Other forms of activities	16.1.	Practice	classes
		16.2.	Individual tasks	classes
		16.3.	Individual (home) learning	105 classes
17.	Method of assessment			

17.1	Tests	<p style="text-align: right;">min – max 18 - 30</p> <p><b>Continual assessment - points</b></p> <p>Continual assessment of knowledge:</p> <p style="padding-left: 40px;">Two written tests</p> <p style="padding-left: 40px;">First test – basic pharmacology (min 6, max 10 points)</p> <p style="padding-left: 40px;">Second test- special pharmacology (min 12, max 20 points)</p> <p style="text-align: right;">min – max</p> <p><b>Oral examination*</b>                      points                      24-41</p> <p><b>Practical examination**</b>                      points                      8-12</p> <p><b>*Oral examination (integrative)</b> – 3 questions on the basis of which the integrative knowledge in the field of pharmacology is assessed, which is important for understanding the subject.</p> <p>Final test</p>
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17.2	Seminar paper/project (oral/written presentation)	min – max

17.3	Active participation	<p>Theoretical classes*</p> <p>Practical classes **</p> <p>*Attendance on theoretical classes</p> <p>30%-50% 1 point</p> <p>51%-70% 2 points</p> <p>71%-100% 3 points</p> <p>**Practical classes</p> <p>Attendance : 3 points</p> <p>Activity:min 6 points, max 11 points</p> <p>Practical exam due to not attendance on class: 1 point</p>	<p>min – max</p> <p>1-3</p> <p>9 - 14</p>
18.	Grading criteria (points / grade)	<p>up to 59 points</p> <p>from 60 to 68 points</p> <p>from 69 to 76 points</p> <p>from 77 to 84 points</p> <p>from 85 to 92 points</p> <p>from 93 to 100 points</p>	<p>5 (five) F</p> <p>6 (six) E</p> <p>7 (seven) D</p> <p>8 (eight) C</p> <p>9 (nine) B</p> <p>10 (ten) A</p>
19.	Requirement for signature and taking the final exam	<p><b>Conditional criteria for assessment of knowledge:</b></p> <p>In order to get a signature, the student is required to attend the theoretical classes, actively participate in practical classes and seminars and take the subsequent exams.</p> <p>In order to take the final exam in the exam session, the student should have passed each of the anticipated continuous exams with a minimum of 60% points.</p> <p>If during the semester the student did not pass the continuous examinations, the student takes a complete exam (in the exam session, first has to pass the one's he did not passed, then he takes the final exam).</p> <p>The grade in the final exam is given according to the grading table, on the basis of the sum of points obtained in all of the</p>	

		activities and the final exam.				
20.	Language of instruction	Macedonian				
21.	Method of monitoring the quality of teaching process	Professors and other members of the Department who are included in the theoretical and practical classes will be evaluated by the students (anonymous).				
22.	Textbooks					
		Mandatory				
	22.1.	1.	Rang and Dale: H.P.Rang, M.M.Dale, J.M. Ritter, R. Flower	Pharmacology	Akademski pecat	2013
			Department of pharmacology and toxicology	Authorized lectures		
			I.Golan, David E	Principles in pharmacology	In press	
			Department of pharmacology and toxicology	Text book for practical exercise	In press	
		Additional				
	22.2.	1.	Goodman & Gilman's Laurence L.Brunton, John S.Lazo, Keith L.Parker	The Pharmacological Basis of Therapeutics	Tabernak il	2011

		2.	Varagic V, Milosevic P	Pharmacology	Elit Medi ca 23 izdanie	2012
		3.				
		4.				