MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
MINISTRY OF EDUCATION AND SCIENCE OF THE KYRGYZ REPUBLIC

Government-run Educational Institution of Higher Professional Education
Kyrgyz-Russian Slavic University named after B.N. Yeltsin
School of Medicine

ENDORSED BY
Prof Anes Zarifyan
"09" 09 2021y.

Biochemistry

Course Outline (Module)

Assigned to	**Chemistry and Biochemistry Department**
Academic Curriculum	31.05.01. - RF, 560001 - KR General Medicine
Qualification	**Specialist**
Mode of Study	**Intramural**
Total Credit Value	**7 credit points**

The Course outline developed by: Matushenko N.S., CBS, Ibraeva I.G., CMS.

Course Hours Scheduling (per semester)

Semester (Academic Year)	3 (2.1)		4 (2.2)		Total	
weeks	18		18			
Type of Training	AC	CO	AC	CO	AC	CO
Lectures	36	36	36	36	72	72
Practical Session	54	54	54	54	108	108
Including Interactive Session	4	4	5	5	9	9
Total In-class Session	90	90	90	90	180	180
Face-to-face Learning	90	90	90	90	180	180
Individual work	18	18	36	36	54	54
Exam			18	18	18	18
Total	108	108	144	144	252	252

1. COURSE OUTLINE OBJECTIVES	
1.1	to acquire systemic knowledge of the main molecular mechanisms of biological systems functioning, their impact on human health and adaptation at the molecular, cellular and organ levels, to form theoretical basis for further study of medical biological and clinical disciplines in specialty 35.05.01 General Medicine

2. PLACE OF THE COURSE IN THE EDUCATIONAL PROGRAM	
Educational Program Units:B1.B	
2.1	**Students' Preliminary Training Requirements:**
2.1.1	Basic knowledge which is necessary for discipline studying is formed in the cycle of mathematical and natural science disciplines (physics, mathematics; health informatics; chemistry; biology; anatomy; histology, embryology, cytology; normal physiology).
2.2	**Course Units and Practical Sessions imposing the prior Proficiency**
2.2.1	pathophysiology, clinical pathophysiology;
2.2.2	pharmacology;
2.2.3	microbiology,
2.2.4	virology;
2.2.5	immunology;
2.2.6	professional disciplines.

3. STUDENTS' COMPETENCIES RESULTING FROM THE COURCE UNIT (MODULE)	
MPC-7: readiness to use basic physical chemical, mathematical and other natural science concepts and methods for solution of professional tasks.	
Knowledge:	
Level 1	General regularities of the natural Sciences to solve professional tasks
Level 2	
Level 3	
Skills:	
Level 1	To use basic laws of natural disciplines and apply methods of mathematical analysis in experimental studies
Level 2	
Level 3	
Expertise:	
Level 1	The main physical, chemical, mathematical and scientific laws
Level 2	
Level 3	

Final Students' Competences

3.1	**Knowledge:**
3.1.1	Fundamental and applied issues of modern biochemistry: chemical composition, structure, exchange and function of molecular and supermolecular complexes;
3.1.2	main ways and basic mechanisms for metabolic regulation of carbohydrates, lipids, proteins, amino acids, nucleotides;
3.1.3	mechanisms of energy exchange and energy supply of tissues;
3.1.4	mechanisms of enzymatic catalysis, features of enzymatic composition of organs; main principles of diagnostics and treatment of diseases caused by enzyme functioning disorders;
3.1.5	mechanisms of regulation and integration of different types of metabolism which provide metabolic and physiological body homeostasis;
3.1.6	principles of biochemical analysis, diagnostically significant indicators of blood, saliva, gastric juice, urine and ranges of their fluctuations in healthy humans.
3.2	**Skills:**
3.2.1	to explain molecular mechanisms, features of structure and functional activity of main organs and tissues;
3.2.2	to perform laboratory works, to record research reports, to assess their results;

3.2.3	to solve test tasks and situational problems on the basis of theoretical knowledge.
3.3	**Expertise:**
3.3.1	Biochemical terminology;
3.3.2	Skills for safe handling and use of laboratory instruments, chemical glassware and other laboratory equipment;
3.3.3	Skills for carrying out biochemical laboratory research using reagents and methodological materials;
3.3.4	Skills to work independently with biochemical literature: to search for data, to use this obtained information for solving biochemical and professional tasks.