

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
School of medicine



Biochemistry

Course Outline (Module)

Assigned to **Chemistry and Biochemistry Department**
Academic Curriculum 31050150_21_12лд ин.plx
31.05.01. - RF, 560001 - KR General Medicine
Qualification **Specialist**
Mode of Study **Intramural**
Total Credit Value **8 credit points**

Course Hours 288
including:
in-class learning 180
Individual work 71,7
exam 35,5

Scope of Testing Semesters:
exams 4
credits 3

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

Course Hours Scheduling (per semester)

Semester (Academic Year)	3 (2.1)		4 (2.2)		Total	
	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
Face-to-face Learning during the period of theoretical training	0,3	0,3			0,3	0,3
Face-to-face Learning during the examination period			0,5	0,5	0,5	0,5
Including Interactive Session	4	4	5	5	9	9
Total In-class Session	90	90	90	90	180	180
Face-to-face Learning	90,3	90,3	90,5	90,5	180,8	180,8
Individual work	17,7	17,7	54	54	71,7	71,7
Exam			35,5	35,5	35,5	35,5
Total	108	108	180	180	288	288

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
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2. PLACE OF THE COURSE IN THE EDUCATIONAL PROGRAM

Cycle (section) CEP:	Б1.О
2.1	Students' Preliminary Training Requirements:
2.1.1	Medical informatics
2.1.2	Physiology
2.1.3	Histology, Embryology, Cytology
2.1.4	Anatomy
2.1.5	Biology
2.1.6	Physics, Mathematics
2.1.7	Chemistry
2.2	Course Units and Practical Sessions imposing the prior Proficiency:
2.2.1	microbiology, virology;
2.2.2	pathophysiology, clinical pathophysiology;
2.2.3	Propaedeutic of internal diseases
2.2.4	pharmacology;
2.2.5	immunology;
2.2.6	Faculty therapy
2.2.7	Faculty surgery
2.2.8	Clinic pharmacology;
2.2.9	Endocrinology
2.2.10	Hospital therapy
2.2.11	Hospital surgery
2.2.12	Infection diseases

3. STUDENTS' COMPETENCIES RESULTING FROM THE COURSE UNIT (MODULE)

MPC-10: Be able to solve standard tasks of professional activity with the use of information, bibliographic resources, medical and biological terminology, information and communication technologies, taking into account the basic requirements of information security.

Knowledge:

Level 1	- the main sources of information, bibliographic resources, methodology for processing scientific and technical information on the Internet and specialized databases, basic techniques for working with specialized software for solving standard tasks of professional activity; - basic laws of physico-chemical and biochemical concepts, biomedical terminology, information and communication technologies, including physical, mathematical (or other) concepts and research methods for solving professional problems.
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Skills:

Level 1	- use medical and biological terminology, information and communication technologies, including physical, mathematical (or other) concepts and research methods to solve standard tasks of professional activity - apply basic physical and chemical concepts and research methods to solve professional problems; - apply information, bibliographic resources, processing methods, search for scientific and technical information using general and specialized databases and apply specialized software for carrying out theoretical calculations and processing experimental data for solving standard tasks of professional activity. - maintain confidentiality when working with information databases.
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Expertise:

Level 1	<ul style="list-style-type: none"> - skills of working with scientific and educational portals, basic skills of using standard, as well as specialized software and databases for statistical processing of research results and presenting them to the scientific community; - medical-biological and other terminology; - elementary methods of work in a physical, chemical, biological laboratory; general safety rules for handling computers, laboratory equipment and chemical reagents; - skills of mathematical, biological, chemical and biochemical thinking, skills of independent work with reference, educational and scientific literature.
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Final Students' Competences

3.1	Knowledge:
3.1.1	Fundamental and applied issues of modern biochemistry: chemical composition, structure, exchange and functions of molecular and supramolecular formations;
3.1.2	the main ways and mechanisms of regulation of metabolism of carbohydrates, lipids, proteins, amino acids, nucleotides;
3.1.3	mechanisms of energy exchange and tissue energy supply;
3.1.4	mechanisms of enzymatic catalysis, features of the enzymatic composition of organs; basic principles of diagnosis and treatment of diseases associated with impaired functioning of enzymes;
3.1.5	mechanisms of regulation and integration of metabolism, providing metabolic and physiological homeostasis of organs
3.1.6	principles of biochemical analysis, diagnostically significant indicators of the composition of blood, saliva, gastric juice, urine and ranges of their fluctuations in a healthy person.
3.2	Skills:
3.2.1	explain the molecular mechanisms of the structure and functional activity of the main organs and tissues;
3.2.2	perform laboratory work, fill out the research protocol, evaluate its results;
3.2.3	solve test tasks and situational tasks based on theoretical knowledge.
3.3	Expertise:
3.3.1	Using of Biochemical terminology;
3.3.2	in using laboratory instruments, laboratory chemical utensils and other laboratory equipment;
3.3.3	of performing biochemical laboratory tests in the presence of reagents and methodological materials;
3.3.4	Skills of independent work with biochemical literature: to search for data, turn what you read into a tool for solving biochemical, and in the future professional tasks.