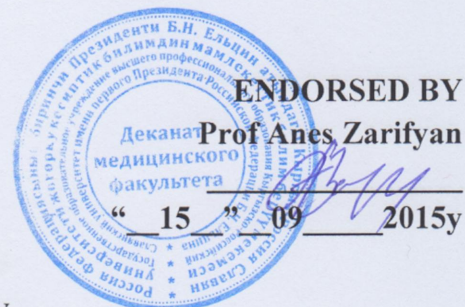


MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION,  
MINISTRY OF EDUCATION AND SCIENCE OF THE KYRGYZ REPUBLIC

Government-run Educational institution of Higher Professional Education  
Kyrgyz-Russian Slavic University  
School of Medicine



## Normal physiology

### Course Outline (Module)

Assigned to  
Academic Curriculum

Normal and pathological physiology  
31050150\_15\_13ld. pli . xml  
31.05.01. General medicine

Mode of Study **Intramural**  
Total Credit Value **7 credit point**

Course Hours 252  
including:  
in-class learning 198  
individual work 36  
exams 18

Scope of Testing Semesters:  
exams 4  
credits 3

### Course Hours Scheduling (per semester)

Semester Academic Year	1 (1.1)		2(1.2)		Total	
	AC	CO	AC	CO		
Weeks	18,7		18			
Type of Training	AC	CO	AC	CO	AC	CO
Lectures	36	36	36	36	72	72
Lab Practical	54	54	72	72	126	126
Including Interactive	4	4	5	5	9	9
Total In-class Session	90	90	108	108	198	198
Individual Work	90	90	108	108	198	198
Individual Work	18	18	18	18	36	36
Face-to-face Learning			18	18	18	18
Total	108	108	144	144	152	252

### 1. COURSE OUTLINE OBJECTIVES

form the students knowledge about the system of vital activity of the holistic organism and its separate parts, on the basic laws of functioning and mechanisms of regulation when communicating among themselves and with external factors of the environment, about the physiological fundamentals of clinical and physiological research methods applied in functional diagnosis and when exploring integrative activity of the person.

### 2. PLACE OF THE COURSE IN THE EDUCATIONAL PROGRAM

Educational Program Units:	B1 B
<b>2.1</b>	<b>Students' Preliminary Training Requirements:</b>
<b>2.1.1</b>	<b>Anatomy</b>
<b>2.1.2</b>	<b>Biology</b>
<b>2.1.3</b>	<b>Latin language</b>
<b>2.1.4</b>	<b>Chemistry</b>
<b>2.1.5</b>	<b>Physics, mathematics</b>
<b>2.1.6</b>	<b>Histology, embryology, cell biology</b>
<b>2.2</b>	<b>Course Units and Practical Sessions imposing the prior Proficiency</b>
2.2.1	Physiopathology, clinical pathophysiology
2.2.2	Immunologia
2.2.3	Pharmacology
2.2.4	Pathological anatomy, clinical pathologic Anatomy

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

**DIC-9: ability to assess the morphological, physiological States and pathological processes in the human body for solving professional tasks.**

<b>Knowledge:</b>	
Level 1	the main function of cells, tissues, organs and body systems.
Level 2	basic properties of cells, tissues and organs and their quantitative characteristics.
Level 3	mechanisms of regulation of the activities of cells, tissues, organs and systems, also the organism in its interaction with the environment.
<b>Skills:</b>	
Level 1	use this knowledge to understand the functions of various organs and systems of holistic organism of a healthy person.
Level 2	use knowledge of peculiarities of functioning of cells, tissues, organs and systems of a healthy organism.
Level 3	use knowledge about the mechanisms of formation of specific and integrative functions, their dependence on external environment and State body to obtain useful Adaptive outcome.
<b>Expertise:</b>	
Level 1	possess basic skills training literature and laboratory equipment.
Level 2	own evaluation methods of functional condition of a healthy body
Level 3	own methods for interpreting the results.

#### Final Students' Competences

<b>3.1</b>	<b>Knowledge:</b>
<b>3.1.1</b>	Structural and functional properties and features of regulation processes of the contraction the striated and smooth muscles. The role of the various divisions and structures of the CENTRAL NERVOUS SYSTEM in the regulation of somatic and visceral bodily functions. Reflex arc with visceral and somatic components. The system of blood and its role in the maintenance and regulation of homeostatic organism constants, function, blood characteristics and features of physiological constants blood; blood group, rhesus factor and its role in pathology, blood transfusion rules, mechanisms of hemostasis. Milestones and indicators external respiratory function, respiratory center and its structure. Digestion as the process required to implement energy and plastic body functions; peculiarities and regularities of structural and functional organization of the functions of the gastrointestinal tract, the formation of hunger and satiation. Basic processes and mechanisms of maintaining body temperature constancy. The basic stages of education urine and their regulation. The major homeostatic functions of the kidneys. Basic properties of heart muscle and their differences from skeletal muscles,

	electromechanical coupling mechanisms, cavities and valvular heart device. Cardiac cycle, the basic mechanisms of regulation of cardiac activity. the principle of the calculation of energy consumption method of indirect calorimetry. Characteristics of Microcirculation, transcappillar exchange and its regulation. The basic morpho-functional peculiarities of the various divisions of sensor systems. Forms of manifestation of the higher nervous activity (GNI) in humans, classification and characterization of types of GNI. Formation mechanisms of a conditioned reflex and its braking role in clinical practice, functional behavioral system components of the Act. The concept and classification of pain; features of morpho-functional organization of the nociceptive and antinociceptive systems.
<b>3.2</b>	<b>Skills:</b>
<b>3.2.1</b>	Analyze: manifestations of blood functions; peculiarities of the different phases of respiration and their regulation; especially the higher nervous activity of man. Conduct research: coagulation system, evaluation of blood groups and rhesus factor; Basic physiological properties of excitable tissues; reflex activity of the nervous system and Autonomic reactivity; functions of sensory systems; pain sensitivity; individually-typological characteristics of the person; performance of somatic and visceral systems (respiratory, cardiovascular) at different functional States of the organism.
<b>3.3</b>	<b>Expertise:</b>
3.3.1	Methods: determination of blood group and rhesus factor; evaluation of the results of the common blood; evaluation of coagulation time; evaluation of sustainability of erythrocyte osmotic; counting erythrocytes and leukocytes; evaluation of the results of the General urine analysis; palpation of pulse; measuring blood pressure; Auscultation of the heart tones; Spirometry, pikfloumetrii; estimating basal metabolic rate and degree of deviation; evaluate types of HNA.

#### 4. COURSE (MODULE) STRUCTURE AND CONTENT

Class Code	Subject Name /Type of Class/	Semester / Academic Year	Hours	Competencies	Literature	Interactive Sessions	Notes
	Section 1. Internal Environment. Physiology of blood. Humoral regulation.						
1.1	The introduction of a live system properties. Homeostasis. The basic principles of regulation of functions, self-regulation. The composition and functions of the blood. /Lek/	3	2	CPC-9	L 11 1.2 1.1 2.1	0	
1.2	The introduction of a live system properties. Homeostasis. the basic principles of regulation of functions, self-regulation. The composition and functions of blood. /Pract	3	3	CPC-9	L 11 1.2 1.1 2.1 3.1 1	0	
1.3	Physico-chemical properties of blood. /Pract/	3	3	CPC-9	L 11 1.2 1.1 2.1 3.1 1	0	
1.4	Red blood cells (erythrocytes, leukocytes, platelets). /Pract/	3	3	CPC-9	L 11 1.2 1.1 2.1 3.1 1	0,5	Computer simulation of laboratory works: definition of hematocrit, calculation of quantity of hemoglobin FEC method, erythrocyte sedimentation rate