MINISTRY OF EDUCATION AND SCIENCE OF KYRGYZ REPUBLIC
OSH STATE UNIVERSITY
INTERNATIONAL MEDICAL FACULTY
DEPARTMENT OF ANATOMY, HISTOLOGY AND NORMAL PHYSIOLOGY

Syllabus

the specialty	*560001-General Medicine (GM)*	Course code	*560001*
The language of study	*English*	Discipline	***Human Physiology 2***
Academic year	*2025-2026*	Number of credits	*4*
Lecturers e-mail	*Argynbaeva A.T.* *aargynbaeva@oshsu.kg* *Paizildaev T.R.* *tpaizildaev@oshsu.kg* *Baigashkaev E.S.* *baigashkaev@oshsu.kg* *Alimbekova A.* *aalimbekova@oshsu.kg* *Orozbek uulu Tursunbek* *torozbekuulu@oshsu.kg*	Semester	*3*
Consultations (time/aud.)	*Weekdays* *09:00-17.00*	Schedule on the OshSU MyEDU	
Form of study	*daytime*	Place (building/aud.)	Morphological campus Room 104, 204
Course type: (compulsory)		*Professional cycle*	

Osh-2025

1. Course characteristics: Human Physiology is part of the professional cycle and belongs to the core section of the educational program (P.C.), which is studied during the second and third semesters. It includes the following sections (didactic units):

- Introduction to the subject. Basic concepts of physiology;
- Physiology of excitable tissues;
- Physiology of the central nervous system (CNS);
- Physiology of the endocrine system;
- Physiology of sensory systems and pain;
- Physiology of higher nervous activity;
- Physiology of blood and circulation;
- Physiology of respiration;
- Physiology of digestion;
- Physiology of metabolism and energy;
- Physiology of thermoregulation;
- Physiology of excretion.

To study this course, students must possess the knowledge, skills, and competencies acquired in human physiology and general biology as part of the educational standards of complete secondary education.

2. The purpose of the discipline to form students' systematic knowledge of the vital activity of the whole organism and its individual parts, the basic laws of functioning and mechanisms of their regulation in their interaction with each other and with the factors of the external environment.

3. Objectives of the discipline:

- able and willing to use basic scientific concepts and methods to analyze the anatomical and physiological characteristics of healthy body systems in solving professional problems;
- able and ready to analyze the basic laws underlying the processes occurring in the human body, their physiological essence and regulation mechanisms; physiological basis of the methods of research of body functions in solving professional tasks
- able and able to measure the most important indicators of human vital functions at rest and under load:
- able and willing to evaluate the results of electrocardiography, electroencephalography, spirography, thermometry, blood and urine tests; use simple medical instruments (phonendoscope, neurological hammer, tonometer, thermometer, perimeter).
- able and willing to use scientific research methods in the field of human physiology, safety rules of work in physiological laboratories; able to formulate tasks, conduct analysis and statistical processing of data; skilled in information search and abstracting from various sources in the professional sphere.

4. As a result of mastering the discipline, the student must:

Know:

- basic laws of development and vital activity of the organism based on the structural organization of cells, tissues and organs
- physico-chemical essence of processes taking place in living organism on molecular, cellular, tissue and organ levels
- human body functional systems, their regulation and self-regulation under influence of external environment in norm and pathology.

Be able to:

- interpret the results of the most common functional diagnostic methods used to detect pathologies of blood, heart and blood vessels, lungs, kidneys, liver and other organs and systems
- give a histophysiological assessment of the state of various cellular, tissue and organ structures

Own:

- simple medical instruments (phonendoscope, neurological mallet, scalpel, tweezers)
-medical-anatomical conceptual apparatus

Prerequisites	Latin, MEN: chemistry, biophysics, SPD: molecular biology and medical genetics, medical biology, normal anatomy
Post requisites	Pathophysiology. Pharmacology. Patanatomy. Clinical disciplines. Pediatrics. Infectious diseases
Co- requisites	Latin, biochemistry, biophysics, medical biology, normal anatomy, histology

Learning outcomes of the PLO "560001-medical business", discipline " Normal physiology "

LO (learning outcomes) BEP	*LO of discipline*	*Competency code and wording*
LO_{BEP}-3: is able to determine and implement the priorities of own activity and ways of its improvement on the basis of accepted moral and legal norms of society;	**LO-1:** able and willing to use basic scientific concepts and methods to analyze the anatomical and physiological characteristics of healthy body systems in solving professional problems; **LO-2:** able and prepared to analyze the basic laws underlying the processes occurring in the human body, their physiological essence and regulation mechanisms; physiological basis of the methods of research of body functions in solving professional tasks **LO-3:** able and able to measure the most important indicators of human vital functions at rest and under load:	**GSC-1-** able and ready to analyze socially significant problems and processes, to use methods of natural sciences, mathematics and humanities in various types of professional and social activities; **SPC-2-** able and ready to implement ethical, deontological and bioethical principles in professional activity; **PC-5:** able and ready to conduct and interpret the interview, physical examination, clinical examination, the results of modern laboratory-instrumental studies, write medical records of outpatient and inpatient adult and child patients; **PC-15**: able and ready to analyze the patterns of functioning of individual organs and systems, to use knowledge of anatomical and physiological features, basic methods of clinical and laboratory examination and evaluation of the functional state of the organism of adults and children, for timely diagnosis of diseases and pathological processes; **PC-32:** able and willing to plan and conduct scientific research;
LO_{BEP}-5: Able to assess morphofunctional, physiological conditions and pathological processes and apply methods of investigation of adult and pediatric patients to solve professional problems;		
LO_{BEP}-7: Is able to apply basic knowledge in the field of diagnostic activity to solve professional tasks;		
LO_{BEP}-11: Is able to apply basic knowledge in the field of research activities to solve professional problems;		

Technological map of accumulation of discipline points

Discipline	**Credit**	**A ud. hour**	S/W S/Wt	**1-module (25 points)**				**2-module (25 points)**				**Exam (50 points)**
		40%	60 %	A uh. watch		S/W S/Wt (s)	RK (*r*)	Audience hours		S/W S/Wt (s)	RK (*r*)	IR (*E*)
				lek	pr			lek	pr			
PC	4	48	72	10	14	30/ 6		10	14	30/6		
OOC	4	48	72	10	14	30/ 6		10	14	30/6		
Map savings points				4	4	8	9	4	4	8	9	50
Module and exam score results				(M= $t_{avg.}$ + rds.) to 25				(M= $t_{avg.}$ + r+s) to 25/				50
				$R_{add.} = M_1 + M_2$ (30- 50)								
Final grade				I = $R_{add.}$ + E = 100								100

Points accumulation map for the subject "Human physiology 2" in one module (3rd semester, 2025-2026 academic year, specialty: 560001- general medicine)

№	Name of students	Average summative assessment of current controls 4 points	Lecture 4 points	IWS with T 4 points	IWS 4 points	Routine control 9 points	Total 25 points

Module = L+ Average summative assessment of CC+IWS with T+IWS+RC

1-module - 25 points	2-module - 25 points
SIW – 4 points IWS with T – 4 №1 current control – 4 …..... №1 final control – 9	SIW – 4 points IWS with T – 4 №1 current control – 4 …..... №1 final control – 9
Exam – 50 points	

The calendar-thematic plan for human physiology of lectures for 1st year students of the international medical faculty in the specialty "560001-general medicine (GM)"

№ week	**№ class**	**Topics**	number of hours lecture	points
1	1	Physiology of blood. Physiology of blood elements RBC, WBC, Platelets. Blood groups and RH-factor	2	4
2	2	Overview of the circulation. Hemodynamics and Hemostasis. Physiology of cardiac muscle. Excitability, contractility, conductivity, rhythmicity.	2	4
3	3	Cardiac output, venous return and their regulation. ECG basics. Nervous regulation of CVS.	2	4
4	4	Physiology of respiration. Pulmonary ventilation.Gas exchange in lungs. Transport of gases in blood.	2	4
5	5	Regulation of respiration. Hypobarium conditions aviation and space physiology. Deep-sea diving, and other hyperbarium conditions in physiology.	2	4
6	6	General physiology of digestion. Basic principles of digestion absorption and motility in the alimentary tract. Digestion in oral cavity and stomach.	2	4
7	7	Digestion in small intestine. Liver and pancreas. Digestion in large intestines.	2	4
8		**Module №1**		
9	8	Physiology of metabolism. Body temperature. Mechanism of thermoregulation.	2	4
10	9	Physiology of excretion. Kidney's physiology.	2	4
11	10	Glomerular filtration, renal blood flow. Regulation of urine	2	4

		formation and renal filtration. Regulation of ECF osmolarity, Na, K, Ca, Mg.		
		Total	**20**	**4**

The calendar-thematic plan for human physiology of practical classes for 1st year students of the international medical faculty in the specialty "560001-general medicine (GM)"

№ week	**№ class**	**Topics**	**number of hours**	**points**
			lecture	
1	1	Physiology of blood. Physiology of blood elements RBC, WBC, Platelets.	2	4
2	2	Blood groups and RH-factor. Hemodynamics and Hemostasis.	2	4
3	3	Physiology of cardiac muscle. Excitability, contractility, conductivity, rhytmicity.	2	4
4	4	Cardiac Cycle. Cardiac output, venous return and their regulation.	2	4
5	5	ECG basics. Heart valves and heart sounds. Nervous regulation of CVS.	2	4
6	6	Physiology of respiration. Pulmonary ventilation. Lung volumes and mechanical respiration.	2	4
7	7	Gas exchange in lungs. Transport of gases in blood. Regulation of respiration.	2	4
8	8	**Module №1**		
9	8	General physiology of digestion. Basic principles of digestion absorption and motility in the alimentary tract.	2	4
10	9	Digestion in oral cavity. Digestion in stomach.	2	4
11	10	Digestion in small intestine. Liver and pancreas. Digestion in large intestines.	2	4
12	11	Physiology of metabolism. Body temperature. Mechanism of thermoregulation.	2	4
13	12	Physiology of excretion. Kidney's physiology. Mechanism of urine formation.	2	4
14	13	Glomerular filtration, renal blood flow.	2	4
15	14	Regulation of urine formation and renal filtration. Regulation of ECF osmolarity, Na, K, Ca, Mg.	2	4
17	**Total**		**28**	**4**

The student's individual work (SIW)

№ and name of the topic	Competencies	Task for self-work	Hours	Form of control	Points	Lit-re	week

1	2	3	4	5	6	7	8
Module №1							
Changes in the body's protective systems, immunity in the process of aging. Problems of organ transplants, histocompatibility of human tissues	GSC-1 SPC-1 PC-5 PC-15 PC-32	1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	1-2
Features of the leukocytic formula and changes in the number of leukocytes in the blood at an early age.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	2-3
Clinical and forensic determination of genetic markers of blood.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	2-3
Blood depot. Age-related changes in blood parameters.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	3-4
Lymph circulation. Composition and properties and importance of lymph. Lymphatic vessels and glands. Mechanisms of lymph movement		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	3-4
The heart as a self-regulating system. Artificial heart and its application in medicine.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6,	5-6
The functional system that maintains blood pressure in the body.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6,	5-6
Circulation during physical exertion. Pathological types of breathing and the causes of their occurrence.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6,	6-7
Features of breathing at physical load, high and low barometric pressure.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6,	6-7
Methods of research of the functional state of the respiratory system using		1. Write an abstract on the topic: 2.Prepare a presentation on the	3	Abstract Workbook	4	1,2,3,4,5,6,	7-8

functional tests.		topic 3. Fill in the workbook					
total	**10**		**30**		**4**		
			Module №2				
Influence of muscular load, hypokinesia, stress on secretory, motor function of the digestive tract.	GSC-1 SPC-1 PC-5 PC-15 PC-32	1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	8-9
Modern methods of examination of the gastrointestinal tract.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook			9-10
Mechanisms of adaptation of the digestive organs to the action of internal and external environment factors.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	10-11
The importance of vitamins for humans. The body's need for vitamins.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	10-11
Physiological basis of hunger and satiety.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	10-11
The dependence of taste sensations on the activity of olfactory, tactile, temperature and other sensory systems.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	11-12
Functional connection of processes of breathing, chewing, swallowing.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	11-12
Clinical and physiological studies of the kidneys. Analysis of urine. Artificial kidney.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	12-13
Regulation of calcium and phosphate balance in the blood.		1. Write an abstract on the topic: 2.Prepare a presentation on the	3	Abstract Workbook	4	1,2,3,4,5,6	13-14

		topic 3. Fill in the workbook					
Thermoregulation during muscular activity in the conditions of production and other types of work. Increasing the resistance of the body to the effects of high and low temperatures.		1. Write an abstract on the topic: 2.Prepare a presentation on the topic 3. Fill in the workbook	3	Abstract Workbook	4	1,2,3,4,5,6	13-14
	10		30		4		
Total	**20**		**60**		**4**		

Note: **-student must complete one assignment of the above.

Course policy (depending on the specifics of the subject, some elements of the course policy can be changed):

1. **Attendance and participation in classes**
   - Requirements for attendance at lectures and practical classes
   - Rules of conduct in classes
   - Consequences of missing classes without a valid reason
2. **Academic Integrity and Plagiarism**
   - Definition of Plagiarism and Academic Dishonesty
   - Consequences of Plagiarism and Cheating on Exams
3. **Deadlines and fines for late submission of work**
   - Deadlines for homework, projects, and other assignments
   - Fines for missing deadlines
4. **Retake and Appeals Policy**
   - Conditions and procedure for retaking exams and tests
   - Rules for filing appeals against grades
5. **Using gadgets in class**
   - Permission or prohibition of the use of phones, laptops and other devices during lectures
6. **Rules for the design of works and links**
   - Requirements for the design of written work, citations and bibliography
7. **Consultations and office hours of the teacher**

Consultation schedule and teacher's reception hours for individual consultations and admission to independent work.

(Clearly stating course policies in a syllabus helps students understand the instructor's expectations and the rules that must be followed during the course, and avoids misunderstandings during the learning process).

Evaluation system

Academic Honesty Declaration: Students taking this course are required to submit a declaration requiring them to comply with the University's policies on academic honesty. Regulation "Organization of the educational process at Osh State University» A-2024-0001, 2024.01.03.2024

The points for the course consist of (100 points):

The points for the course consist of (100 points):

4.5. **Scale ratings academic academic performance:**

Letter grading system	**Digital equivalent GPA points**	**Point system (rating)**	**Gradation**	**Characteristics of academic performance**
A+	**4.0**	**95 - 100**	**Great**	The student not only demonstrated knowledge of the material, but was also able to confidently apply it in practice situations. The rating indicates a high level mastering the subject.
A	**3.5**	**90 - 94**		The student demonstrated deep knowledge and skills apply they're on practice, very minor errors.
B+	**3.0**	**85 - 89**	**Very good**	Result higher average, But with some minor flaws. The student demonstrated good understanding key concepts.
IN	**2.5**	**80 - 84**		Good knowledge subject with small mistakes. The student has a confident command of the material
C+	**2.0**	**75 - 79**	**Fine**	The student has mastered the basic elements subject and can apply knowledge. This corresponds to sufficient level.

WITH	**1.5**	**70 - 74**		Knowledge of the material is at a sufficient level, although there are mistakes or shortcomings.
D+	**1.0**	**65 - 69**	**satisfactorily**	The level of knowledge is acceptable. Student completed minimum requirements
D	**0.5**	**60 - 64**		Level knowledge acceptable, but with noticeable shortcomings. Student completed minimum requirements
FX	**0,0**	**30 - 59**	**Not satisfactorily**	Student Not took possession material in the required volume and did not meet the requirements. Necessary retake.
F	**0,0**	**1- 29**		The student did not achieve the minimum level of knowledge or skills required to pass a subject or exam. Necessary refresher course of study of the discipline
W	-	-		An assessment confirming the student's refusal to continue studying this subject.
X	-	-		A student may be suspended from studying a discipline for academic reasons by administrative order.

Educational resources

№ week	**№ class**	**Topics**	Ссылки
1	1	Physiology of blood. Physiology of blood elements RBC, WBC, Platelets. Blood groups and RH-factor	https://youtube.com/watch?v=efKtYZfHXm0&si=NVcdt7tH-UYzR_k4
2	2	Overview of the circulation. Hemodynamics and Hemostasis. Physiology of cardiac muscle. Excitability, contractility, conductivity, rhythmicity.	https://www.youtube.com/channel/UCJPaF4uNx3q9Gf9y85ed3VQ
3	3	Cardiac output, venous return and their regulation. ECG basics. Nervous regulation of CVS.	https://videos.feedspot.com/physiology_youtube_channels/?utm_source=chatgpt.com
4	4	Physiology of respiration. Pulmonary ventilation.Gas exchange in lungs. Transport of gases in blood.	https://youtube.com/playlist?list=PLTF9h-T1TcJhB0HeD3fba49FTJuwPN8_O&si=y2slr5Uzs6APOE4a
5	5	Regulation of respiration. Hypobarium conditions aviation and space physiology. Deep-sea diving,	https://www.pearson.com/en-us/pearsonplus?utm_source=chatgpt.com

		and other hyperbarium conditions in physiology.	
6	6	General physiology of digestion. Basic principles of digestion absorption and motility in the alimentary tract.	https://www.youtube.com/channel/UCJPaF4uNx3q9Gf9y85ed3VQ
7	7	Digestion in oral cavity. Digestion in stomach.	https://videos.feedspot.com/physiology_youtube_channels/?utm_source=chatgpt.com
8	8	Digestion in small intestine. Liver and pancreas. Digestion in large intestines.	https://www.youtube.com/channel/UCJPaF4uNx3q9Gf9y85ed3VQ
10	9	Physiology of metabolism. Body temperature. Mechanism of thermoregulation.	https://videos.feedspot.com/physiology_youtube_channels/?utm_source=chatgpt.com
11	10	Physiology of excretion. Kidney's physiology. Mechanism of urine formation.	https://videos.feedspot.com/physiology_youtube_channels/?utm_source=chatgpt.com
12	11	Glomerular filtration, renal blood flow.	https://www.youtube.com/channel/UCJPaF4uNx3q9Gf9y85ed3VQ
13	12	Regulation of urine formation and renal filtration. Regulation of ECF osmolarity, Na, K, Ca, Mg.	https://videos.feedspot.com/physiology_youtube_channels/?utm_source=chatgpt.com
		Total	

(use the full link and indicate where the texts/materials can be accessed)	
Electronic resources	**Подкасты** Anatomy & Physiology – Bit by Bit https://podcasts.apple.com/us/podcast/anatomy-and-physiology-bit-by-bit/id1480060049 Succeed In A&P https://podcast.feedspot.com/human_anatomy_podcasts/?utm_source=chatgpt.com **YouTube-каналы** Crash Course (Anatomy & Physiology); Physiology for Students https://youtube.com/playlist?list=PL8dPuuaLjXtOAKed_MxxWBNaPno5h3Zs8&si=1oMCGx_v_cyaME85 The Physiology Channel https://www.youtube.com/channel/UCJPaF4uNx3q9Gf9y85ed3VQ Physiology practicals Dr. Shital G Dr. Dipti, Turning Brain – Physiology by Dr. Preeti Tyagi, DrHardik Mistry https://videos.feedspot.com/physiology_youtube_channels/?utm_source=chatgpt.com Dr Matt & Dr Mike https://www.youtube.com/playlist?list=PLRDwuoRClPzfT3stF5tVzANdFsvci2_0C

	Ninja Nerd Physiology https://youtube.com/playlist?list=PLTF9h-T1TcJhB0HeD3fba49FTJuwPN8_O&si=y2slr5Uzs6APOE4a **Искусственный интеллект / цифровые обучающие платформы** Pearson AI Tutor https://www.pearson.com/en-us/pearsonplus?utm_source=chatgpt.com StudyMonkey AI https://studymonkey.ai/subjects/physiology?utm_source=chatgpt.com
e-books	*https://www.pdfdrive.com/principles-of-anatomy-and-physiology-with-a-brief-atlas-of-the-skeleton-surface-anatomy-d184863666.html* *https://medicostimes.com/guyton-medical-physiology-pdf* *https://www.pdfdrive.com/principles-of-anatomy-and-physiology-e181322079.html* *ibooks.oshsu.kg*
Laboratory Physical Resources	• Sphygmomanometers and stethoscopes • ECG machine • Laboratory scales • Computers with internet access • Projector or interactive board • Syringes, test tubes, pipettes, gloves, consumables • Training mannequins • Biomechanical models (cardiovascular, respiratory systems) • Educational posters and charts • Methodological guidelines • Virtual laboratory software
Regulatory legal acts	https://disk.yandex.ru/d/HJ38V2RWLLvhjA
Textbooks (library)	**Main Literature:** 1. Arthur C. Guyton, John Edward Hall Textbook of Medical Physiology. - 11th edition. - University of California: Elsevier Saunders, 2006. - 1116 c. 2.K. Sembulingan, PremaSembulingam-Essentials of Medical Physiology - 6th edition. - Jaypee Brothers Medical Publishers (P) Ltd, 2012. - 1092 p. - ISBN-10: 9350259362. - ISBN-13: 978-9350259368. **Additional literature** 1. Ganong's Review of Medical Physiology 25th Edition / Kim E. Barrett, Susan M. Barman, Scott Boitano, and Heddwen Brooks, 25th ed. - CA: McGraw Hill Professional, 2015. - 768 c. 2. Cindy L. Stanfield Principles of Human Physiology, Global Edition. - 6th ed. Pearson Education Limited, 2016. - 816 c. 3. n. Geetha Practical Physiology. - Jaypee: Jaypee, 2017. - 393 c.

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Chairwomen EMI IMF
Candidate of Economic Sciences, Associate Professor — Bazieva A.M