Name of the Discipline	Human Anatomy and Physiology
Semester(s)	3/4
Responsible teacher	Umirov Nurulla Usanovich, senior teacher Soliyeva Gulnoza Daniyarovna, Biology science teacher
Language of teaching/learning	Uzbek
Connection to the curriculum	Compulsory
Academic workload (including contact hours and self-study)	Total workload: 240 hours Contact hours: lectures: 60 hours practical lessons: 60 hours IWS: 120 hours
ECTS	8
Prerequisites	Developmental Biology, Zoology, Biochemistry, Chemistry
Discipline objectives / Learning Outcomes	The purpose of the discipline is to give a holistic understanding of the life activity of the whole organism, its interaction with the external environment, taking into account the cellular, tissue, organ system and behavioral levels of modern teaching on Human Anatomy and Physiology. **Learning Outcomes** - explain the role of Anatomy and Physiology in the formation of the modern Natural Science picture of the world; - be able to recognize images in atlases and tables; - classify organs by cavities; -solve problems on all topics studied in theoretical and laboratory classes in Human Anatomy and Physiology; - interpret Physiological processes; - critically analyze basic general professional information; -organize laboratory work and draw conclusions from them, - determine the relationship between Anatomical and Physiological Laws; - explain the dependence of one's own health on the state of the environment; -know the role of hormones and vitamins in the body; - carry out Physiological experiments; - describe the results of Physiological experiments; - examine finished Microslides; - use the knowledge gained from studying Human Physiology in professional activities; - formulate Scientific Hypotheses when discussing literature and own data; - choose a communicatively acceptable style of business communication; - use the necessary language tools, tactics and strategies to solve communicative problems in the academic and professional spheres; - work with educational and scientific texts of different levels of complexity that meet the tasks of professional activity
Lessons' contents	Content 1. Introduction - subject, goal, objectives, methods, history of the development of Human Anatomy. 2. Musculoskeletal system: Structure and connection of bones. 3. Structure and connection of the upper and lower limbs. 4. The structure and connection of the bones of the skull. 5. Muscular system. Muscles and their functions. The importance of muscles for the body. Muscle structure, shape, Muscle function. Muscles of the head and

	neck: Topography, Fascia 6. Muscles of the trunk; Topography, Fascia. 7.Muscles of the upper and lower extremities: Topography, Fascia. 8. Structure of Internal Organs. The structure of the Digestive Organs. 9. Structure of the Respiratory Organs. 10. Structure of Excretory Organs 11.Structure of the Cardiovascular System. The structure of blood vessels: Arteries, Veins. Structure of the heart. 12.Circles of Blood Circulation. Aorta and its branches. Lymphatic system: Lymphatic Vessels, Lymph Nodes, structure of the Spleen. 13.Structure of Secretion Glands: Endocrine, Mixed and exocrine. 14. Nervous System. The meaning of the Nervous System. The structure of the nerve fiber. White and gray matter. Neuron. Structure of the spinal cord. 15. Structure of the brain. The structure of the Cerebral Hemispheres. 16. Structure of the organ of vision. The structure of the eye, eyelids, auxiliary apparatus of the eye. 17. The structure of the hearing organs. The structure of the organ of hearing and balance. Skin structure. The structure of the Olfactory organ. The structure of the taste organ. 18. Introduction - subject, goal, objectives of the development of the science of Human Physiology. Methods and history of studying Physiology 19. Physiology of the Blood System. 20. Blood transfusion. Blood groups. Circulation. Biology and Physiology of blood. Immune function of blood. 21. Physiology of the Cardiovascular System. Physiology of the heart. Conduction system of the heart. Electrocardiogram. Blood pressure and pulse. Humoral reflex regulation of cardiac activity. 22. Physiology of the circulatory and lymph circulation systems. Vascular system. Lymphatic circulation. Physiology of microcirculation. Features of blood flow in the veins. Reflex action on the central vein that moves the veins. 23. Physiology of the respiratory organs. Mechanisms of breathing and exhalation. Transport of gases by blood. Gas exchange in the lungs and tissues, control of the activity of the respiratory center. Changes in the nature of breathing during various muscle activities. 24. Physiology of the Digestive System. Enzyme activity. Works of Ivan Pavlov on the study of Digestive functions. Digestion of food. Activity of the liver and pancreas. The essence of Nutrient Absorption. Digestive Regulation 25. Physiology of matter and Energy Metabolism. Protein Metabolism. Carbohydrate Metabolism. Lipid Metabolism. Exchange of water and mineral salts. Macro and Microelements. 26. Mineral salts. Vitamins. Classification of Vitamins. 27.Energy exchange. Study of the body's energy expenditure (Calorimetry) Energy balance of the body. Direct Calorimetry. Indirect Calorimetry. 28. Physiology of heat exchange and thermoregulation. 29. Physiology of excretion. Juxtaglomerular complex, glomerular filtration. Reabsorption and secretory function in the renal tubules. Physicochemical properties of urine and urine formation. Regulation of excretion 30. Physiology of endocrine glands. General properties of hormones and their classification. 31. Endocrine glands. Mixed and exocrine glands. Neurophysiological properties of the glands: pituitary gland, pineal gland, thyroid, parathyroid,

	adrenal glands, pancreas, genital glands. 32. Physiology of the skin. Skin sensitivity. Pain analyzer. The structure of skin receptors. The meaning of receptors. 33. Physiology of the Neuromuscular System 34. Bioelectric Phenomena in living tissues 35. Physiology of the Nervous System. Central Nervous System. Types of Neurons. Nerve cells and their functions. Nerve fibers and their basic properties. Synapses. 36. Functions of the spinal cord. Spinal reflexes. Spinal nerves. 37. Physiology of the cerebral hemispheres. Physiology of the brain. Cortex. 38. Methods for studying the functions of the cerebral cortex. 39. Physiology of the autonomic nervous system. 40. Physiology of higher nervous activity. Unconditioned reflexes and instincts. Conditioned reflexes. Inhibition of conditioned reflexes and their types. Dynamic stereotype. 41. Signal System 1 and 2. 42. Sleep, Dreams, Hypnosis 43. Memory. Mechanisms of memory. Physiological basis of memory. Attention. Emotions. Physiological basis of emotions. Causes of neuroses. 44. Physiology of sense organs (vision, hearing). 45. Physiology of sense organs (smell, taste, touch).
The exam format	Oral
Teaching/learning and examination requirements	Complete mastery of theoretical and methodological concepts in the discipline, the ability to correctly reflect the results of analysis, independently reason about the physiological processes being studied and carry out tasks in the current, intermediate forms of control, and pass the exam orally on the final control. When creating Final Exam questions, deviations from the content of the discipline program are not allowed. The bank of Final Exam questions for each discipline is discussed at the meeting and approved by the head of the department. When compiling Final Exam Question Cards, the Final Exam question bank is used; the number of questions in the Question card should be in a 50/50 ratio, depending on the content of classroom and Self-Study. No later than 1 week before the start of the final control, Question cards approved by the head of the department, enclosed in an envelope, are sealed by the Dean’s office and opened 5 minutes before the start of the exam in the presence of students. The student who has chosen the Final Exam Question Card is given 5-10 minutes to prepare and 10-15 minutes to answer Final Exam questions orally. On average, 20 minutes are spent per student. When forming the composition of the oral examination commission, 1 commission member is approved for every 15 students. The student's Final Exam grade is posted on the electronic platform on the same day. Student(s) who are dissatisfied with the Final Exam results may submit a written or oral appeal within 24 hours of the publication of the Final Exam results. Complaints submitted after 24 hours from the publication of the Final Exam results will not be accepted. The teacher who taught the students in this discipline is not involved in the process of conducting the exam and checking the students' answers.
Bibliography	1.Маматқулов Д.А. Одам анатомияси ва физиологияси. (Анатомия) Т.: Адабиёт учқунлари 2020. 2.Шахмурова Г.А., Хамдамова М.И. Анатомия физиологии человека. 1-

	часть. Учебное пособие. Т.: “Лессон пресс” нашриёти. 2021. 334 с. 3. Mamatqulov D.A., Mannapova N.SH. Anatomiya. T.: Elektron darslik. 2018. 4. Mamatqulov D.A. Anatomiya. T.: Adabiyot uchqunlari. 2017. 5. Шахмурова Г.А., Хамдамова М. И. Анатомия, физиология человека. ZUXRA BARAKA BIZNES. T. 2021. 6. Парамон Эдиториал Теам Атлас де Анатомиа перевод с испанского Маневич И.А. / Издательство «Белый город»/ Москва 2019, - с 104. 7. Сапин М.Р. Анатомия человека [Электронный ресурс]: учебник / - М.: ГЭОТАР-Медиа, Т. 2020.
Scope of assessment criteria and procedure	**CURRENT CONTROL** **Purpose:** Determining and assessing the student's level of knowledge, practical skills, and competencies on course topics. **Instructions:** The student's activity in daily classes is assessed through the student's mastery of course topics, as well as constructively interpreting and analyzing the educational material, developing module-specific skills, acquiring practical skills (in terms of quality and the specified number) and competencies, solving problem situations aimed at applying professional practical skills, working in a team, preparing presentations, etc. **Current control form:** Activity in lessons Preparing educational materials Working with sources within the subject Using educational technologies Working in a team Preparing presentations Working with projects **INTERMEDIATE CONTROL** **Purpose:** Assessing the student's knowledge and practical skills and level of mastery of lecture material after completing the relevant section of the course. **Form and procedure of intermediate control:** Midterm examination is held during the semester during the training sessions after the completion of the relevant module of the curriculum of the subject. Midterm examination is held once in written form within the framework of this subject. Midterm examination questions cover all topics of the subject. **Independent learning:** **Purpose:** Independent learning is aimed at fully covering the content of this course, expanding the theoretical knowledge acquired, and establishing independent learning activities for students. **Form and procedure of independent education:** ndependent work assignments are completed in the form of an educational project, presentation, case study, problem solving, information search, digest, colloquium, essay, article, abstract, etc. Completed assignments for independent study are placed in the electronic system and checked based on the anti-plagiarism program and evaluated by the subject teacher. In this case, the uniqueness of the completed assignment should not be less than 60%, otherwise the assignment will not be accepted for assessment. The number of independent work assignments, depending on the nature of the subject, should not be less than 3 for one subject (module). Independent work assignments account for 60% of the points allocated for current and intermediate control.

Independent learning task 1: Preparation of project work based on independent learning topics

Independent learning task 2: Preparing sample video lessons based on specialized subject topics.

Independent learning task 3: Preparation of open lesson plans in specialized subjects using interactive methods.

Independent learning task 4: Analysis of educational normative documents for specialized subjects and preparation of presentations.

FINAL CONTROL

Purpose: The final examination is held at the end of the semester to determine the level of mastery of the student's theoretical knowledge and practical skills in the relevant subject. The final examination is held at a specified time according to the examination schedule created by the Registrar's Office on the electronic platform.

Requirements: The student must have passed the current control, intermediate control and independent learning assignments by the deadline for the final control type in the relevant subject.

A student who has not passed the current control, intermediate control and independent learning assignments, as well as who has received a score in the range of "0-29.9" for these assignments and control types, is not included in the final control type.

Also, a student who has missed 25 percent or more of the classroom hours allocated to a subject without a reason is excluded from this subject and is not included in the final control type and is considered not to have mastered the relevant credits in this subject.

A student who has not passed or was not included in the final control type and has received a score in the range of "0-29.9" for this type of control is considered to be an academic debtor.

Final control form: The final examination in this subject will be conducted in written form.

If the final examination is conducted in written form, the requirements for assessment must also be reflected.

Criteria for assessing student knowledge

5 stars	**100 points**		**Evaluation criteria**
5	90-100	Excel lent	When a student is considered to be able to make independent conclusions and decisions, think creatively, observe independently, apply the knowledge he has gained in practice, understand, know, express, and narrate the essence of the subject (subject), and have an idea about the subject (subject)
4	70-89,9	Good	When the student is considered to be able to observe independently, apply the knowledge he has gained in practice, understand, know, express, and narrate the essence of the subject (subject), and has an idea about the subject (subject)
3	60-69,9	Satisfactory	When the student is found to be able to apply the knowledge he has gained in practice, understands, knows, can express, and narrate the essence of the subject

				(subject), and has an idea about the subject (subject)
	2	0-59,9	Unsatisfactory	When it is determined that the student has not mastered the science program, does not understand the essence of the science (subject), and does not have an idea about the science (subject)

Course evaluation criteria and procedure

Control type	**Total points allocated**	**Control (task) form**	**Distribution of points**	**Qualifying score**
Current control	30 points	System tasks	20 points (divided by the number of tasks)	18 points
		Student activity (in seminars, practical, laboratory classes)	10 points	
Intermediate control	20 points	Supervision: Written work	10 points	12 points
		System tasks	10 points (divided by the number of tasks)	
Final inspection	50 points	Written assignment (5 questions)	50 points (10 points per question)	30 points

** **Note:** 60% of the points allocated for current and intermediate control are allocated to independent work assignments. Independent work assignments are evaluated as system assignments through the electronic platform.*