Identification	**Subject**	EDU475, Introduction to the Anatomy and Physiology of Children, 6 ECTS
	Department	Life Science
	Program (Undergraduate, Graduate)	Bachelor
	Term	Spring 2026
	Instructor	Zaur M. Karimov (PhD)
	E-mail:	zaur.karimov@khazar.org
	Telefon:	
	Classroom/hours	
Prerequisites	-	
Language	Eng	
Compulsory/Elective	-	
Textbooks and course materials	1. Janet MacGregor İntroduction to the anatomy and physiology of children. Published in 2002. 1.(2) Fundamentals of Children and Young People's Anatomy and Physiology ELIZABETH GORMLEY-FLEMING IAN PEATE Published in 2021. 2. N.R.Zeyniyev, A.H.Axundov, N.H.Sultanova, E.Ə.Yolçuyeva, T.Ə.Tağıyeva Uşaq anatomiyası, fiziologiyası və gigiyenası Bakı 2014 3. M.A.Qarayev, N.M.Mehdizadə, E.C.Mehbalıyeva Uşağın Anatomiyası, Fiziologiyası və gigiyenası Bakı 2021 4. Cell structure - Oxford University Press. 2014 5.https://www.edvotek.com/site/pdf/AP07.pdf?srsltid=AfmBOopohcBJJfIsXEvQnGHRXQpsu4V1SG_G9NBJCLRGIGkVoSLqXjWM 6.https://www.khanacademy.org/science/biology/principles-of-physiology/body-structure-and-homeostasis/a/tissues-organs-organ-systems 7.https://iastate.pressbooks.pub/individualfamilydevelopment/chapter/periods-of-human-development/ 8. Əliyev Ə.H., Məhərrəmov Ş.A., Əliyeva F.Ə. İnsan anatomiyası. Bakı: 2007. 9. Ə.H.Əliyev, F.Ə.Əliyeva, V.M.Mədətova İnsan və heyvan fiziologiyası Bakı 2007 10. V.B.Şadlinski, Ş.İ.Qasımov, N.T.Mövsümov İnsan anatomiyası Bakı 2013 11. Marieb, E.N. and Hoehn, K. (2019) Human Anatomy and Physiology. 11th Edition, Pearson Education Ltd. 12. Atlas of Human Anatomy, Professional Edition: including NetterReference.com Access with Full Downloadable Image Bank (Netter Basic Science) 7th Edition by Frank H. Netter MD (Author) 2018 https://www.youtube.com/watch?v=8Nb9E62p2c0 https://www.youtube.com/watch?v=GMBSU-2GK3E https://www.youtube.com/watch?v=Ae4MadKPJC0	

	https://www.youtube.com/watch?v=7Hk9jct2ozY		
Teaching methods	**Case analysis**		x
	Seminar		x
	Group discussion		x
	Simulation		x
Evaluation Criteria	**Methods**	**Date/deadlines**	**Percentage (%)**
	Midterm Exam	TBA	30
	Quizzes		10
	Activity		5
	Practical Assignments		10
	Final exam	TBA	40
	Attendance		5
	Total		100
Course description	The purpose of teaching the course "Introduction to the Anatomy and Physiology of Children " is to: familiarize students with the fundamentals of the human body's age-related periodization , the physiological basis of the organ and system activity at different ages, and the principles of the systemic organization of bodily functions; to develop students' understanding of the mechanisms regulating physiological functions, the interaction of regulatory systems and mechanisms that maintain the constancy of the body's internal environment and ensure an adequate response to changes in the environment, and the processes of higher nervous activity; the hygienic foundations of mental and physical activity, work and rest regimens, nutrition, and hygienic requirements for the conditions for implementing the educational process. The course is generally structured to move through major bodily systems, ensuring understanding of both structure and function. Foundation: Introduction to anatomical vocabulary, basic body tissues, and, often, developmental stages. Musculoskeletal System: Development of the skeleton, bones, and muscles. Nervous System: Brain development, sensory functions, and motor control. Cardiovascular & Respiratory Systems: Heart, blood vessel structure, and lung function. Digestive & Renal Systems: Nutritional needs, waste processing, and fluid balance. Immune & Reproductive Systems: Development of defenses, maturation, and sexual development. System Integration: How these systems work together to maintain homeostasis.		
Course objectives	The goal of this course is to develop students' understanding of the anatomical and physiological characteristics and functional capabilities of the body of children and adolescents, the fundamental psychophysiological mechanisms of cognitive and learning processes, and the hygienic standards necessary for normal development. Course objectives: to provide knowledge of the morphological and physiological characteristics of development of children at		

	different stages of ontogenesis, possible functional disorders, and their correction; to familiarize students with the physiological foundations of learning and education; to teach them how to apply acquired knowledge and skills in organizing the educational and upbringing process; to foster professional responsibility for the health of the younger generation in teaching activities in school and preschool settings.
Learning Outcomes	The student should know: - Fundamental patterns of individual development (growth, development, maturation, critical periods). - Anatomy and age-related physiology of the musculoskeletal, cardiovascular, respiratory, digestive, and endocrine systems. - Morphofunctional characteristics of the nervous system, development of analyzers, age-related changes in higher nervous activity. - Hygienic foundations for organizing the educational process: performance, fatigue, mental hygiene, and daily routine. - Patterns of body development (including the development of the skeletal system, muscle tissue, and the development of reflexes). The student should be able to: - Determine the topographic location and structure of organs, understanding their age-specific characteristics. - Assess environmental factors in terms of their impact on a child's development and health. - Analyze the physical and mental development of children, taking into account age-related norms. - Apply knowledge of anatomy to prevent diseases and injuries, and to properly organize the educational process and physical activity. - Monitor the physical condition of children and adolescents and diagnose signs of fatigue. - Organize work taking into account the psychophysiological characteristics of different age groups.
Class Policy	**Lesson organization** General information on the subject will be provided for the students during lesson. Student's knowledge on the previous topics will be evaluated and new topic will be explained by mins of visual aids during lessons. Student's knowledge level will be tested oraly and in written forms before midterm and final exams. Submission of the individual works by the end of course is obligatory. **Attendance** Participation of students at all classis is important. Students should inform dean's office about missing lessons for particular reasons (illness, family issues

	and etc.). Students, missing more than 20% of lessons, are not allowed to take the exam. **Lates** Those students who are late for lessons for more than 5 minutes are not allowed to participate at the lesson. Despite this, the student is allowed to take part in the second part of the lesson. **Tests** Those students who have informed the teacher and the dean's office about missing the test in advance for particular reasons, are allowed to take the test next week. **Exams** All the issues related to the participation and admission to the exam are regulated by the faculty dean. Topics of midterm and final exams are provided for the students before the exams. The questions of midterm exam are not repeated in the final exam. **Violation of the rules of the exams** Disrupting the test and taking copy during midterm and final exams is forbidden. Test papers of the student who do not follow these rules are canceled and the students are expelled from the test by getting 0 (zero). **The rule for completing the course** In accordance with the University rules the overall success rate to complete the course should be 60% or above. The students who failed the exam would be to take this subject next semester or next year. **Rules of conduct for Students** Disruption of the lesson and not following ethical norms during the lesson, as well as conduction of the discussions by the students without permission and using mobile phones is forbidden.

Tentative Schedule

Week	Date/Day (tentative)	Topics	Textbook/Assignments
	I	The subject of the science of pediatric anatomy, physiology and hygiene and its relationship with other sciences and history of development. Cell Structure & Function. Cell division: mitosis and meiosis. Cell division: mitosis and meiosis.	Lecture material. Textbook (2). 28, 29 p. Textbook (5, 6).

	II	Human tissue: types (epithelium, connective, muscular, and nervous) structure & function.	Lecture material. Textbook (2). 59-60 p. Textbook (7).
	III	Periods of Human Development (Individual and Family). Child physical needs. The nervous system (Brain growth embryology, Temperature control).	Lecture material. Textbook (2). 70-110 p. Textbook (8). Textbook (4) 2-21 p. 45-49 p.
	IV	The nervous system (Nerve growth, The blood/brain barrier, Birth and the primitive reflexe).	Lecture material. Textbook (4) 52-55 p.
	V	The nervous system (Sensory nerve function, Neuromuscular control, Sleep)	Lecture material. Textbook (4) 57-69 p.
	VI	Body and mind (The limbic area of the brain, The hypothalamus, The developing mind).	Lecture material. Textbook (4) 195-200 p.
	VII	The skeletal system (Embryology, The changing skeleton, Growth in height, Genetic inheritance, Hormones of growth, Physical activity play, Body shape changes).	Lecture material. Textbook (4) 23-37 p.
		Midterm Exam	
	VIII	The cardiovascular system (Heart embryology, Foetal heart circulation, Blood cell production in the foetus and neonate, Children's blood, Common blood tests).	Lecture material. Textbook (4) 71-77 p. Textbook (2) 150-180 p.
	IX	The cardiovascular system (Circulation changes in the heart at birth, Changes in the cardiovascular system in childhood, Exercise and cardiovascular function)	Lecture material. Textbook (4) 78-82 p.
	X	The respiratory system (Embryology, Surfactant, The lungs at birth, Infant breathing – the first few weeks, The small child's breathing, Apnoea, Respiratory	Lecture material. Textbook (4) 89-103 p. Textbook (2) 181-200 p.

		resuscitation, Changes at puberty, Measuring respiratory rates, Respiration during exercise, Breathing changes during sleep, Development of the ear)	
	XI	The digestive system (The developing gut, The mouth, Teeth, Reflexes of the mouth and throat, The stomach, The small intestine – duodenum and ileum, Weaning, Failure to thrive, Calorie needs, The liver and blood glucose balance, Physiological jaundice, Bowels, Stools).	Textbook (2) 201-215 p. Lecture material. Textbook (4) 129-145 p.
	XII	Endocrine system. The reproductive system (Male or female – the embryology, Changes after birth, Body composition of lean and fat tissues – sex differences, Changes in the reproductive system at puberty, Genetics, The ovary and ovary cycle, Menstrual cycle, Sexually transmitted diseases).	Textbook (2) 216-236 p. Lecture material. Textbook (4) 151-167 p.
	XIII	The renal system (Water balance, Embryo urinary system development, The kidney and urine production at birth, Fluid requirements in the first week, Developing continence, Bed wetting – nocturnal enuresis, Gaining continence, Dehydration and rehydration, Urine).	Textbook (2) 237-254 p. Lecture material. Textbook (4) 109-111 p.
	XIV	Structure and development of the skin. Functions and hygiene of the skin. Childhood infections. The immune system (Protection from micro-organisms – the three lines of defence, Lymphocyte development in the embryo, Immunoglobulin (Ig) production in the foetus and newborn, The rhesus factor, Embryology of the thymus gland and T lymphocyte development, Lymph vessel development, Stress, The damaging chronic stress hormones, Resilience, The physiology of immunisation, Points of interest when vaccinating children).	Textbook (2) 255-270 p. Lecture material. Textbook (4) 173-189 p.
	XV	**Final exam**	

This program reflects the comprehensive information about the subject and information about any changes will be provided in advance.