Name of the Discipline	**Zoology**
Semester(s)	1/2/3/4
Responsible teacher	Sanayeva Lola Shukurboyevna, biology sciences candidate, associate professor. Soliyeva Gulnoza Daniyarovna , Biology science teacher Abdurakhmonova E'zoza Qahramon kizi, intern teacher
Language of teaching/learning	Uzbek
Connection to the curriculum	Compulsory
Academic workload (including contact hours and self-study)	Total workload: - 540 h Contact hours – Lectures 120 h practical -150 h IWS 270 hours
ECTS	18
Prerequisites	Biology, Chemistry, Physics, Geography
Discipline objectives / Learning Outcomes	The purpose of the discipline is to study the patterns of manifestations of animal life and the diversity of the animal world, the structure and vital activity of animals. Learning Outcomes: - determine the role of Zoology in the formation of the modern Natural Science picture of the world, its place in the system of Natural Sciences; - have an idea of the structural features of the integument and their derivatives, muscles, skeleton, digestive, respiratory, circulatory, excretory, reproductive, and nervous systems; - recognize different levels of animal organization - from protozoa to higher chordates; - determine the relationship, common origin and evolution of various groups of invertebrate and vertebrate animals; -know the features of the formation of the structure of animals in Phylogenesis and Ontogenesis; - track phylogenetic relationships of various groups of animals; - compare the features of the structure and functioning of organs and systems of various groups of animals; - possess the techniques of a comparative anatomical approach, the skills of identifying animals, their organs and systems; - master the skills of working with laboratory equipment and animal preparations; - describe and explain the results of experiments; - carry out practical work and draw conclusions from it; - use the knowledge gained from studying Zoology in professional activities; -formulate scientific hypotheses when discussing literature and own data; - work with educational and scientific texts that meet the tasks of professional activity.
Lessons' contents	Content Contents 1. Introduction to Zoology. Objects, subject, purpose, objectives and history of the development of Zoology. 2.Acquaintance with invertebrates. 3. Protozoology. Amoeboid protozoa and phylum Euglenozoa 4.Types of Chlorophytes. Volvox class. Class Kinetoplastida. Opaline subtype.

	5.Alveolate type 6.Ciliary subtype 7.Types of Microsporidia, Microsporidia. Phylogeny of unicellular animals. 8.Structure, reproduction, development, classification and origin of multicellular animals. Lower multicellular organisms 9.Subsection Eumetazoans. Section radially symmetrical. Types Coelenterates and Ctenophores 10.Subtype Mesozoic: types Orthonectida and Orthoniectidae and Dicyemida. Type of flatworms. Class Ciliated worms 11. Class Flukes. Flukes that parasitize humans and productive animals. 12.Classes of Monogenea and Tapeworms. 13.Type of roundworms. Classes Gastrotricha and Nematodes. 14. Classes Hairworms, Rotifers, Kinorhynchs, Priapulids 15.Type Acanthocephalans (Spiny-headed) and Nemerteans 16.Type annelids. Class Polychaetes. 17. Belt subtype. Classes Oligochaetes and Leeches. 18.Class Primary Annelates. Types Echiurida and Sipunculida. Significance and phylogeny of annelids. 19. General characteristics and taxonomy of the type Mollusks. Subtype Amphineura. Classes Shell-Less and Chitons. Subtype Shells. Class Gastropods 20.Classes Bivalves, Scaphopoda and Cephalopoda. 21.Types of Onychophora and Tardigrade. General characteristics and taxonomy of Arthropods. General characteristics and classification of subtypes Trillobite and Crustacean. 22.Higher Crustaceans. General characteristics and taxonomy of the subtype Chelicerata 23.Classes Arachnids and Sea Spiders. 24. General characteristics and taxonomy of the Tracheal subtype. Superclass Centipedes. General characteristics of Six-legged or Insects 25. Structure, reproduction and development of insects 26. Classification of the superclass Insects. 27. The main orders of insects with incomplete metamorphosis (continued). The main orders of insects with complete metamorphosis. 28. The main orders of insects with complete metamorphosis. Harmful insects and their control. Phylogeny of arthropods. General characteristics and diversity of Gnathostomulids. Types Rotifera, Camptozona and Cycliophara. 29.Subtype Lophofarata. Phylums Phoronidae, Brachiopods, Bryozoans, Chaetognathae. Types Tentacled and Pogonophora. 30.Supertype Deuterostomes. General characteristics and taxonomy of the phylum Echinodermata. Phylogeny of echinoderms. 31.Objects, subject, goals and objectives, history of the development of Vertebrate Zoology. 32.Subtypes Hemichordata (Hemichordata) and larval chordates (Urochordata). 33.Subtype Skull-Less. Class Cephalochordates. 34.Subtype Cranial (Craniata) or Vertebrata (Vertebrata) 35.Section Jawless. 36.Section Gnathostomata, Superclass Fishes (Pisces). 37.Class Cartilaginous fish 38. Systematics of the class Cartilaginous fish. 39.Class Bony fish 40. General characteristics and taxonomy of the subclass Ray-finned. 41. General characteristics of the Subclass Lobe-finned superorders lobe-finned

	and lungfish, features of their structure 42. Ecology and origin of Fish. Economic importance and fish conservation 43.Superclass Quadrupeds (Tetrapoda). Class amphibians, or amphibians (Amphibia) 44. General characteristics of the amphibian class 45. Systematics of amphibians. 46. Ecology, origin and significance of amphibians. 47. Class reptiles. 48. Systematics of the class reptiles 49.Ecology, origin and significance of reptiles. Features of the herpetofauna of Uzbekistan 50. Class of Birds (Aves). 51. Internal structure of birds: skeleton, muscles, digestion, excretion, respiration, circulatory and nervous systems, sensory organs, reproduction and development. 52. Systematics of the class of birds. Superorders penguins and ratites 53. Orders: Stork-Like, Gooiformes, Falconids (Daytime Predators), Ospreys, Galliformes, Cranes, Gulls, Passerines, etc. 54. Bird Ecology. 55.Class mammals 56. Internal structure, reproduction and development of mammals. 57. Systematics of the class of mammals 58. Subclass Real animals, or Viviparous (Theria). 59.Ecology of mammals 60. Species of mammals listed in the Red Book of Uzbekistan and their distribution.
The exam format	Oral
Teaching/learning and examination requirements	Full acquire of theoretical and methodological concepts related to Zoology, the ability to correctly reflect the results of analysis, independent observation of the processes and concepts being studied, completing tasks given in current, intermediate forms of control and final control. Pass the exam orally according to the final control. In 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 card should be in a 50/50 ratio, depending on the content of classroom and independent learning. 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 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. In 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. Mavlonov O., Saparov K., Toshmanov N. ZOOLOGIYA (umurtqasiz hayvonlar). 5110400-biologiya o‘qitish metodikasi bakalavr ta’lim yo‘nalishi talabalari uchun darslik. Sano-standart nashriyoti. Toshkent-2018. 2. Dadayev S., Saparov K. Umurtqalilar zoologiyasi. Oliy o‘quv yurtlari biologiya ixtisosligi bakalavriat bosqichi biologiya yo’nalishi talabalari uchun darslik. Toshkent, «TURON-IQBOL». 2019, 720 b. 3. Dadaev S., Saparov K. Umurtqasizlar zoologiyasi o‘quv predmetidan laboratoriya mashg‘ulotlari. Pedagogika oliy o‘quv yurtlari bakalavriat bosqichining 5110400-Biologiyani o‘qitish metodikasi ta’lim yo‘nalishi talabalari uchun o‘quv qo‘llanma. Toshkent. Navro‘z nashriyoti. 2020. 4. Зоология беспозвоночных : учеб. пособие для вузов / С. Ю. Кустов, В. В. Гладун. — 2-е изд., пер. и доп. — М. : Издательство Юрайт, 2019. — 271 с. 5. Козлов С. А., Сибен А.Н., Лящев А.А. Зоология / Учебное пособие для вузов. 4-е изд., 2023, 328 с.
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.*