

Name of the Discipline	Botany
Semester(s)	1/2/3/4
Responsible teacher	Abdullayeva Nilufar Sag'dullayevna, Doctor of Philosophy in Biology (PhD), Associate Professor, Koziyeva Sahobat Uktamovna , Doctor of Philosophy (PhD) in Biological Sciences, Associate Professor Esankulova Dilbar Saitovna , Biology teacher.
Language of teaching/learning	Uzbek
Connection to the curriculum	Compulsory
Academic workload (including contact hours and self-study)	Total workload: 600 h Contact hours – Lectures 120 h Practical -150 h IWS 330 hours
ECTS	20
Prerequisites	Biology, Geography, Chemistry, Physics
Discipline objectives / Learning Outcomes	<p>The purpose of the discipline is to study the evolutionary process of plants, familiarize themselves with the morpho-anatomical structure of the vegetative and generative organs of plants, clarify the diversity of plant forms and their classification.</p> <p>Learning Outcomes</p> <ul style="list-style-type: none"> - list the main stages of the evolution of lower and higher plants; - identify the principles of the emergence of adaptations for life on land and the general strategy; - know general issues and problems of Botany, role and scale, distribution areas; - be able to use biological processes in various spheres of Human life - determine the significance of lower and higher plants for the raw materials and medical-pharmaceutical industries - assess the trend in the development of Flora and the growing importance of the problem of reducing Biodiversity (endangered and rare, endemic species) of plant resources; -classify the conditions for the restoration of rare and endemic plant species and Environmental Protection; - recognize different plant families and typical adaptations to different environmental conditions; -structure the vegetative and generative organs of plants; - demonstrate knowledge of safety regulations when working in the laboratory and in the field; - know the types of Biological objects and Chemical reagents when used for the preparation of temporary preparations; - 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; - systematize materials according to composition, properties and functional purpose;

	- place and mount materials collected during field training, and place them in a special herbarium fund.
Lessons' contents	<p>Content</p> <ol style="list-style-type: none"> 1. The concept of a plant cell, tissue, root and stem. Introduction. Flora and its diversity. 2. Structure, Chemical composition, function and methods of division of a plant cell. 3. Vacuole, cell sap and inclusions, its chemical composition and function in the life of the cell. Vacuole 4. General concept of Tissues and their classification (classification). 5. The structure of integumentary Tissue and their significance. 6. Structure and functions of the main Tissue. 7. Structure, functions of Excretory Tissues and their significance. 8. The structure of Mechanical Tissue and their significance. 9. The structure of Conductive Tissue and its importance in plant life. 10. Morpho-anatomical structure of vegetative organs of plants. 11. Changed forms of roots, their significance in the life of humans and plants. 12. Primary and secondary anatomical structure of the root. 13. General concept of stem and shoot. The emergence, growth and branching of a branching system. 14. Primary and secondary anatomical structure of the stem. 15. Modified shoots and their structure. 16. Morphological structure and main function of the leaf. 17. Anatomical structure and main function of the leaf. 18. Reproduction of plants, the structure of flowers and fruits, as well as their growth and development. Regeneration and propagation of plants. 19. Asexual and sexual reproduction of plants of lower plants. 20. Reproduction of gymnosperms. 21. Structure, types and functions of a flower. 22. Structure and types of Androecia. Microsporogenesis. 23. Structure and types of Gynoecia. Megasporogenesis and the female gametophyte. 24. The structure of inflorescences, their types according to the main morphological characteristics. 25. Pollination and fertilization in flowering plants. 26. Structure of angiosperm seeds. 27. Structure and variety of fruits, classification. 28. The distribution of seeds and fruits is of particular importance. 29. Adaptation of plants to living conditions and environmental groups. 30. Ontogenesis of flowering plants. Seasonal changes in plants. 31. Virus, bacteria and other protozoa. Goals and objectives of plant taxonomy, history. 32. Lower (Thallobionta) and higher plants (Embryophyta). 33. Viruses (Virophyta). Bacteria (Bacteriophyta), structure, reproduction and classification. 34. Blue-green algae (Cyanophyta) 35. Green algae (Chlorophyta). 36. Red algae (Rhodophyta). 37. Brown algae (Phaeophyta). 38. Yellow-green algae (Xanthophyta), Pyrrophyta (Purrophyta), Golden algae (Chrysophyta) and diatoms (Diatomophyta) are a general characteristic of the algae department.

	<p>39. Mixomycetes - division of succulents (Mixophyta). Department of fungi (Mycophyta, Fungi).</p> <p>40. Classes Ascomycetes (Ascomycetes) Basidiomycetes (Basidiomycetes).</p> <p>41. Department of Lichens (Lichenes).</p> <p>42. General description and characteristics of higher plants. General description of higher plants. Department of bryophytes (Bryophyta) and rhinophytes (Rhinophyta).</p> <p>43. Division Moss Weed (Lycopodiophyta).</p> <p>44. Division of Horsetails (Equisetophyta).</p> <p>45. Fern division (Polypodiophyta).</p> <p>46. Division of Gymnosperms (Pinophyta or Gymnospermae).</p> <p>47. Department of flowering plants (Magnoliophyta).</p> <p>48. Class Poppy.</p> <p>49. Clove family (Caryophyllales).</p> <p>50. Rosaceae family (Rosales) Legume family (Fabales).</p> <p>51. Order Umbrellas (Apiales). Family Umbrella</p> <p>52. Subclass Dilleniidae (Dilleniidae).</p> <p>53. Willow, pumpkin, poplar.</p> <p>54. Class Lamiidae.</p> <p>55. Order Asterales.</p> <p>56. Order Sapindales, Family Rutaceae.</p> <p>57. Monocots (Monocotyledones) or Liliaceae (Liliopsida).</p> <p>58. Order Poales.</p> <p>59. Order Sedges (Cyperales). Subclass Palms (Arecidae).</p> <p>60. General concept of plant community (phytocenosis). Environmental groups.</p>
The exam format	Written
Teaching/learning and examination requirements	<p>Complete mastery of theoretical and methodological concepts and practical knowledge of the discipline, the ability to correctly reflect the results of analysis, independently reason about the processes being studied and carry out tasks in the current, intermediate forms of control and independent work, pass written work on the final control.</p> <p>When drawing up 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.</p> <p>When compiling Final Exam question Cards, the Final Exam question bank is used; the number (3-5 questions) of questions in the card should be in a 50/50 ratio, depending on the content of classroom and independent learning.</p> <p>No later than 1 week before the start of the final control, tickets signed 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. Final Exam duration is 80 minutes. Answers to Final Exam questions are recorded in copybooks with the seal of the Dean's office. After completion of the Final Exam work, the work is immediately encrypted by a representative of the Dean's office, and the copybooks are handed over to the commission for verification. From the moment of completion of the Final Exam, a period of 72 hours is allotted for checking and posting the results on the electronic platform.</p> <p>The teacher who taught the students in this discipline is not involved in the process of conducting the exam and checking the students' answers.</p> <p>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</p>

	Exam results will not be accepted.
Bibliography	<p>Xo'janazarov O'E., Mavlonov X., Sadinov J.S. Botanika (O'simliklar sistematikasi). T.: TDPU, 2022. Darslik.</p> <p>Duschanova G.M. Botanika - o'simliklar morfologiyasi va anatomiyasi (Laboratoriya mashg'ulotlari). – T: Bookmany print, 2022. 380 b. (o'quv qo'llanma).</p> <p>Tursinbayeva G.S., Duschanova G.M., Sadinov J.S. Botanika (o'simliklar morfologiyasi va anatomiyasi). Darslik. "Tafakkur bo'stoni" nashriyoti, Toshkent, 2018.</p> <p>Рахимова Н.К., Дусчанова Г.М., Абдуллаева А.Т., Юсупова Д.М. Анатомическое строение некоторых эндемичных однодольных геофитов флоры Узбекистана Ташкент: Издательство «Фан» АН РУз, 2021. – 208 с</p> <p>Зотеева Е. А. Ботаника: морфология и систематика растений: Учебное пособие. – Урал, 2019. ISBN - 978-5-94984-704-6</p>
Scope of assessment criteria and procedure	<p>CURRENT CONTROL</p> <p>Purpose: Determining and assessing the student's level of knowledge, practical skills, and competencies on course topics.</p> <p>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.</p> <p>Current control form:</p> <ul style="list-style-type: none"> Activity in lessons Preparing educational materials Working with sources within the subject Using educational technologies Working in a team Preparing presentations Working with projects <p>INTERMEDIATE CONTROL</p> <p>Purpose: Assessing the student's knowledge and practical skills and level of mastery of lecture material after completing the relevant section of the course.</p> <p>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.</p> <p>Independent learning:</p> <p>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.</p> <p>Form and procedure of independent education: Independent work assignments are completed in the form of an educational project, presentation, case study, problem solving, information search, digest, colloquium, essay, article, abstract, etc.</p> <p>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.</p> <p>In this case, the uniqueness of the completed assignment should not be less than 60%, otherwise the assignment will not be accepted for assessment.</p>

	<p>The number of independent work assignments, depending on the nature of the subject, should not be less than 3 for one subject (module).</p> <p>Independent work assignments account for 60% of the points allocated for current and intermediate control.</p> <p>Independent learning task 1: Preparation of project work based on independent learning topics</p> <p>Independent learning task 2: Preparing sample video lessons based on specialized subject topics.</p> <p>Independent learning task 3: Preparation of open lesson plans in specialized subjects using interactive methods.</p> <p>Independent learning task 4: Analysis of educational normative documents for specialized subjects and preparation of presentations.</p> <p>FINAL CONTROL</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Final control form: The final examination in this subject will be conducted in the form of a test. If the final examination is conducted in written form, the requirements for assessment should also be reflected.</p>			
Criteria for assessing student knowledge	5 stars	100 points		<p>Evaluation criteria</p> <p>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)</p> <p>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)</p>
	5	90-100	Excellent	
	4	70-89,9	Good	

	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 work Test 25 questions	50 points (10 points per question)	30 points	
	<i>* 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.</i>					