

MINISTRY OF HIGHER EDUCATION, SCIENCE AND  
INNOVATION OF THE REPUBLIC OF UZBEKISTAN  
CHIRCHIK STATE PEDAGOGICAL UNIVERSITY

"I APPROVE"

Temporary performer of the

Academic Council member for academic work

D. B. Chirchik

2023 year



**PLANT PHYSIOLOGY**  
**STUDY PROGRAMM (Syllabus)**  
3rd full-time course

Field of knowledge: 100000 – Education  
Field of study: 110000 – Education  
Direction of education: 60110900 – Biology

№	Type of training	A dedicated hour	Semester V	
			A dedicated hour	A dedicated credit
1	Lecture	26	26	✓
2	Laboratory training	26	26	✓
3	Independent study	78	78	✓
5	Total audience hours	52	52	✓
6	Total hours	130	130	✓

The working curriculum of science (syllabus) is prepared on the basis of the curriculum of the discipline "physiology of plants", approved by the statement No. 1 of the Council of the Chirchik State Pedagogical Institute of the Tashkent region dated August 23, 2021.

Working curriculum of science (syllabus) Board of Chirchik State Pedagogical University 2023 " " -the number is approved by the Assembly statement.

**Compilers:**

**H.X. Matniyazova** doctor of Biological Sciences, Professor of the Department of "Biology", ChSPU

**G.Dj. Mavlonova** teacher of the Department of "Biology", ChSPU

**D.N. Tillaboyeva** teacher of the Department of "Biology", ChSPU

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**Reviewers:**

**A.K. Safarov** doctor of Biological Sciences, associate professor of the Department of "Botany, physiology of plants", NUU.

**I.V. Safarov** associate professor of the Department of "Biology", ChSPU

The curriculum (Syllabus) of the Chirchik State Pedagogical university Faculty of Natural Science, Department of Biology, was reviewed oah recommended for approval at № \_\_ meeting " " 2023.

**Head of department:**  **DSc, prof. V.B. Fayziyev**

The working curriculum of science was discussed at the \_\_ meeting of the Faculty of Natural Sciences of Chirchik State Pedagogical University on " " , 2023.

**Dean of the faculty:**  **DSc, prof. A. K. Raximov**

<b>Code of subject/modul</b> Bio3155	<b>Study year</b> 2023-2024	<b>Semester</b> 5	<b>ECTS – Credits</b> 5
<b>Type of subject/modul compulsory</b>	<b>Language of education</b> Uzbek		<b>Class hours per week</b> 4
<b>1</b>	<b>Name of subject</b> Plant physiology	<b>Audience training</b> 52	<b>Independent education</b> 78
			<b>Total</b> 130

**1. Methodological instructions for teaching academic subjects.**

We know that it is necessary to educate highly qualified specialists in order to educate young people to be highly qualified. The purpose of teaching the science of plant physiology to students is to inform them about all the physiological and biochemical processes that take place in plant cells and tissues and the influence of external environmental factors on them, to form a love for mother nature, to develop a well-rounded person. education and training of mature specialists.

**2 Goals and objectives of the science of plant physiology.**

The purpose of teaching science is the history of the development of the science of plant physiology, the peculiarities of ontogenesis and ecology, plant cell physiology, the water regime of plants, photosynthesis and respiration of plants, mineral nutrition, plant growth It is to create skills in students about growth and development, resistance of plants to unfavorable factors.

The task of science is the essence of physiological and biochemical processes in plants, the laws of growth and development, the physiology of crop formation and the physiology of processes in the preservation of agricultural products, the intensity of growth and development, the indicators of photosynthetic activity and the rate of reaction. to determine the degree of change, to teach students to diagnose the lack or excess of mineral nutrients based on morpho-physiological indicators.

**3. Lecture sessions**

No	Themes of lecture sessions.	Volume of lesson hours
	V semester	
1.	The subject, method, purpose, tasks and history of development of the science of plant physiology.	2
2.	Chemical composition of the cell. Structural structure of a plant	2



cell. Plasmatic membrane.	
3. General information about water exchange. Water absorption through the root.	2
4. Movement of water through the plant. Transpiration.	2
5. The importance of green plants for the biosphere. Movement of chloroplasts. Physiological significance of phycoobilins.	2
6. Light reactions of photosynthesis.	2
7. Dark reactions of photosynthesis. Control of the process of photosynthesis. Photosynthesis and productivity.	2
8. Respiration of plants. Types of breathing.	2
9. Breathing mechanisms. Influence of external factors on breathing.	2
10. Mineral nutrition of plants. Physiological importance of mineral elements.	2
11. Assumption of mineral elements by plants. Plant growth.	2
12. General information about phytohormones. Mechanism of action of phytohormones.	2
13. Types of external factors. Biological factors. Diseases of plants caused by viruses, bacteria, fungi, insects, nematodes.	2
<b>Total</b>	<b>26</b> ✓ hours

Lectures are held in an auditorium equipped with multimedia devices for the flow of academic groups. During the study of the science of "normative foundations of preschool education", lectures from information technologies, various presentations, multimedia technologies and modern technologies of education and interactive methods are used.

#### 4. Laboratory training

Themes of laboratory training		Volume of lesson hours
V semester		
1. Salinity of proteins.		2
2. Observing the phenomenon of plasmolysis and deplasmolysis.		2
3. Observing the phenomenon of turgor.		2
4. Determining the compressive strength of plant tissue (cell).		2
5. Observation of the phenomenon of guttation.		2
6. Observation of the movement of leaf buds under a microscope. Determining the degree of opening of leaf openings by the infiltration method.		2
7. Determination of water exchange in the trunk of trees.		2

8. Determination of starch formation under the influence of light.	2
9. Leaf pigments and their properties.	2
10. Determining oxygen absorption by the seeds.	2
11. Determination of elements found in plant ash.	2
12. Determination of the root growth zone.	2
13. Study of the effect of amylase-diestase enzyme on starch in plant tissue.	2
<b>Total</b>	<b>26</b> ✓

Laboratory training should be conducted in small groups in a biotechnology laboratory equipped with the necessary equipment. It is desirable that the lessons are conducted using active and interactive methods, and appropriate pedagogical technologies are used.

#### 5. Independent education

No	Themes of independent education	Volume of hours
1.	Preparation for laboratory training.	2
2.	Acquaintance with literature.	6
3.	Osmotic properties of a plant cell.	10
4.	The influence of external environmental factors on plants.	10
5.	The process of photosynthesis in chloroplasts.	10
6.	Photosynthesis.	20
7.	Breathing.	20
<b>Total</b>		<b>78</b> ✓

#### 6. Requirements for obtaining loans:

Full mastery of theoretical and methodological concepts related to science, accurate reflection of analysis results, independent observation of the studied processes and completion of tasks and tasks given in the current, midterm control forms, written work on final control submit.

#### 7. Criteria for evaluating and controlling students' knowledge of science

Approved by the order of the Minister of Higher and Secondary Special Education of the Republic of Uzbekistan No. 19-2018 dated August 9, 2018, registered by the Ministry of Justice of the Republic of Uzbekistan No. 3069 dated September 26, 2018 developed in accordance with the regulation "On the control and evaluation system of students' knowledge in higher education institutions"

8. Abdullaev R.A., Asomov D.K., Beknazarov B.O., Safarov K.S., Asomov D.K. "O'simliklar fiziologiyasidan amaliy mashg'ulotlar", O'quv qo'llanma. Toshkent. Universitet. 1994

**Internet addresses:**

1. [www.cspl.uz](http://www.cspl.uz)
2. [www.pedagog.uz](http://www.pedagog.uz)
3. [www.edu.uz](http://www.edu.uz)
4. <http://zivotnet.uz>

<b>1</b>	<b>2</b>
<b>Evaluation methods</b>	<b>Written works, oral examination, exhibitions</b>
<b>Evaluation criteria</b>	<p>5- "excellent"</p> <ul style="list-style-type: none"> <li>- conclusion and decision-making;</li> <li>- ability to think creatively;</li> <li>- ability to observe;</li> <li>- being able to apply the acquired knowledge in practice;</li> <li>- understanding the essence;</li> <li>- to know, to tell;</li> <li>- have an imagination.</li> </ul> <p>4- "good"</p> <ul style="list-style-type: none"> <li>- ability to observe;</li> <li>- being able to apply the acquired knowledge in practice;</li> <li>- understanding the essence;</li> <li>- to know, to tell;</li> <li>- have an imagination.</li> </ul> <p>3- "satisfactory"</p> <ul style="list-style-type: none"> <li>- understanding the essence;</li> <li>- to know, to tell;</li> <li>- have an imagination.</li> </ul> <p>2- "unsatisfied"</p> <ul style="list-style-type: none"> <li>- not having a clear idea, not knowing.</li> </ul>

**Basic literatures:**

1. Xo'jaev J. "O'simliklar fiziologiyasi" T.: "O'qituvchi", 2004. darslik.
2. Beknazarov B.O. "O'simliklar fiziologiyasi" darslik. Toshkent. Universitet. 2009
3. H.X.Matniyazova, M.A.Xalikova, S.M.Nabiyev, A.A.Azimov O'simliklar fiziologiyasi fanidan laboratoriya mashg'ulotlari uchun o'quv qo'llanma Toshkent 2021.

**Additional literatures:**

4. Zikiryayev A., Mirhamidova P. "O'simliklar biokimyosidan amaliy mashg'ulotlar" – T. "Mehnat" -2001. o'quv qo'llanma.
5. Pratev O., Shamsirvalieva L. va boshqalar. "Botanika" – T.: "Ta'lim nashriyoti", 2010. darslik
6. Mustaqimov G.D. "O'simliklar fiziologiyasi va mikrobiologiya asoslari" –T.: "O'qituvchi", 1995. (o'quv qo'llanma).
7. Sagdiev M.T., Alimova R.A. "O'simliklar fiziologiyasi", o'quv qo'llanma. Toshkent. YAngiyo'l poligraf-servis. -2007





CHET TILINI BILISH DARAJASI TO'G'RIDA

SERTIFIKAT  
CERTIFICATE

OF FOREIGN LANGUAGE PROFICIENCY

Sertifikat № | Reference Number

23BBA1007304KD

Talabgor to'g'risidagi ma'lumot | Candidate Details

Shaxsni tasdiqlovchi

hujjat seriyasi va raqami | ID series and number:

AB 4697748

Familiyasi | Surname

KARSHIBAYEVA

Ismi | First Name

DANO

Otasining ismi | Patronymic Name:

NAZM QIZI



Chet tili |  
Foreign Language

INGLIZ TILI

Daraja |  
Level

B2

Test sinovi  
natijalari |  
Test Results

Tinglab tushunish |  
Listening

56

O'qish |  
Reading

65

Umumiy ball |  
Overall Score:

58

Yozish |  
Writing

57

Gapirish |  
Speaking

54

Berilgan sanasi |  
Date of Issue:

27.03.2023

Amal qilish muddati |  
Valid until:

26.03.2025

Direktor |  
Director



M.KARIMOV



**BUYRUQDAN KO'CHIRMA**

2023-yil « 21 » 12

№ 01-288 - son

Chirchiq sh.

**2023/2024-o'quv yilida bakalavriat  
ta'lim yo'nalishlarida mutaxassislik  
fanlarini ingliz tilida o'qitish to'g'risida**

O'zbekiston Respublikasi Prezidentining 2017-yil 27-iyuldagi PQ-3151-sonli "Oliy ma'lumotli mutaxassislarni tayyorlash sifatini oshirishda iqtisodiy sohalari va tarmoqlarining ishtirokini yanada kengaytirish chora tadbirlari to'g'risida"gi qarorining 5-bandida belgilangan vazifalar ijrosini ta'minlash maqsadida

**BUYURAMAN**

1. O'zbekiston Respublikasi Prezidentining 2017-yil 27-iyuldagi PQ-3151-sonli "Oliy ma'lumotli mutaxassislarni tayyorlash sifatini oshirishda iqtisodiy sohalari va tarmoqlarining ishtirokini yanada kengaytirish chora tadbirlari to'g'risida"gi qarorining 5-bandi rahbarlik va ijro uchun qabul qilinsin.

2. O'quv ishlari bo'yicha prorektor D.B.Axmadjanov, O'quv-uslubiy boshqarma boshlig'i M.J.Boltayev va barcha fakultet dekanlariga:

2023/2024-o'quv yilida bakalavriat ta'lim yo'nalishlarining barcha kurslarida mutaxassislik fanlarini ingliz tilida o'qitishni bosqichma-bosqich tashkil etish, ingliz tilida dars o'tadigan professor-o'qituvchilarni maqsadli tayyorlash, ularning xorijda tegishli tayyorgarlikdan o'tishini tashkil etish, shuningdek, o'quv mashg'ulotlarini olib borishga xorijiy mutaxassislarda bugungi kunda foydalanilayotgan zamonaviy o'quv adabiyotlari asosida o'qitilishini yo'lga qo'yish vazifalari yuklatilsin.

3. 2023/2024-o'quv yilida bakalavriat ta'lim yo'nalishlarida mutaxassislik fanlarini ingliz tilida olib boruvchi professor-o'qituvchilar tarkibi ilovaga muvofiq tasdiqlansin.

4. Ushbu buyruqni elektron shaklda tegishliligi bo'yicha mas'ullarga yetkazish devonxona mudiri I.Rajabova zimmasiga topshirilsin.

5. Mazkur buyruqning bajarilishini nazorat qilish o'quv ishlari bo'yicha prorektor D.B.Axmadjanov zimmasiga yuklatilsin.

*Asos O'zbekiston Respublikasi Prezidentining 2017-yil 27-iyuldagi PQ-3151-sonli qarori*

**Rektor**

*Ko'chirma asliga to'g'ri*



**G.I.Muxamedov**

*Nazoratchi*

<b>Mutaxassislik fanlarini ingliz tilida o'qitish bo'yicha professor o'qituvchilari ro'yxati</b>				
№	Professor o'qituvchining F.I.SH	Ta'lim yo'nalishi	Dars beradigan kursi, guruhi	Fanining nomi (inglizcha)
1	Raupova Mohinur Haydar qizi	Matematika va informatika	2-kurs 22/8 guruh	Elementary mathematics (Algebra), Mathematical analysis, Algebra and theory numbers
2	Ibodullayev Doniyor Quvondiqovich	Matematika va informatika	1-kurs 23/6 guruh, 2-kurs 22/8 guruh	Computer support from science, Information security, Network technologies
3	Rajabov Oybek Tog'aymurod o'g'li	Matematika va informatika	2-kurs 22/8 guruh	Web technologies, Programming languages
4	Israilova Feruza Akbar qizi	Matematika va informatika	2-kurs 22/8 guruh, 1-kurs 23/6 guruh	Of differential equations, Of geometry
5	Quljonov Nodir Jonadil o'g'li	Matematika va informatika	2-kurs 22/8 guruh	Of elementary mathematics (geometry), Mathematical literacy
6	Mahkamov Doston Shokir o'g'li	Gid hamrohligi va tarjimonlik faoliyati	2-kurs 22/2 guruh	Legal basis of tourism
7	Kamoliddiunov Farrux Burxoniddin o'g'li	Tarix	4-kurs 20/3 guruh	World history (most recent period)
8	Yo'ldoshev Umrzoq Xamza o'g'li	Tarix	4-kurs 20/3 guruh	Cooperation of international organizations
9	Tillaboyeva Dono Nazm qizi	Biologiya	3-kurs 21/1	Plant physiology
10	Ramazanov Baxtiyor Ramazanovich	Biologiya	2-kurs 22/1	Enviromental security and sustainable development