



Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب Section Concerning the Student

1. Course Code:	BIOLS 320	1. رمز المقرر:
2. Course Title	Plant Physiology	2. اسم المقرر:
3. College:	College of science	3. الكلية:
4. Department:	Biology	4. القسم:
5. Academic Program:	Bachelor of Science in Biology	5. البرنامج الأكاديمي:
6. Course Credits:	2-2-3	6. عدد الساعات المعتمدة:
7. Course NQF Level:	8	7. مستوى المقرر وفقاً للإطار الوطني للمؤهلات:
8. Notional Hours:	126	8. عدد الساعات الافتراضية:
9. NQF Credits:	13	9. عدد الساعات المعتمدة للمقرر وفقاً للإطار الوطني للمؤهلات:
10. Prerequisite:	BIOLS 300	10. المتطلب السابق للمقرر:
11. Lectures Timing & Location:		11. وقت المحاضرة ومكانها:
1. General Mode of Teaching and Learning	تقليدي Traditional	12. النمط العام للتعليم والتعلم:

2. Course Coordinator:		13. منسق المقرر:
3. Course Instructor:		14. مدرّس المقرر:
4. Office Hours and Location:		15. الساعات المكتبية ومكانها:
5. Instructor's Email:		16. البريد الإلكتروني لمدرّس المقرر:
6. Academic Year:		17. السنة الأكاديمية:
7. Semester:		18. الفصل الدراسي:
8. Textbook(s):	19. الكتب الدراسية للمقرر:	
<p>Taiz, L., Zeiger, E., Moller, I. M. and Murphy, A. (2022). <i>Plant physiology and development</i>. 7th Edition: Sinauer Associates. Oxford University Press.</p> <p>And its companion webpage: www.plantphys.net</p>		
9. References:	20. المراجع:	
www.plantphys.net		
10. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.):	21. مصادر التعلّم الأخرى (مثال: التعلّم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ...)	
Videos		
11. Course Description (as published in the College Catalogue):	22. توصيف المقرر (حسب ما ورد في دليل الكلية):	
Water relations; uptake and accumulation of solutes; mineral nutrients; photosynthesis; respiration; nitrogen metabolism; growth and growth hormones; environmental stress.		
12. Course Intended Learning Outcomes (3 to 5 CILOs):	23. مخرجات التعلّم للمقرر (CILOs) 1. إلى 5 مخرجات تعلّمية):	
1. Apply water potential concept in describing water dynamics at the cellular and in soil-plant-atmosphere continuum.		
2. Identify the essential elements required by plants and relate each to its physiological role in plants.		
3. Discuss solute transport mechanisms in plant tissues and the role of chemical potential to solute transport.		
4. Distinguish the biochemical processes involved in assimilation of mineral nutrients, light harvesting, CO ₂ assimilation, photorespiration and cellular respiration.		
5. Interpret some physiological strategies developed in plants to cope with different abiotic stresses.		

13. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain):			2. أساليب التقييم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):	
Assessment التقييم	Type النوع	Perc enta ge النسبة	Assessment Date تاريخ التقييم	
Quizzes	Individual فردي	10 %		
Examinations	Individual فردي	30%		
Lab exams	Group جماعي	20 %		
Final Examination	Individual فردي	40 %		
Total	100%			
14. Description of Topics Covered			3. وصف الموضوعات التي ينبغي تناولها:	
Topic Title (e.g. chapter/experiment title) الموضوع			Description التفصيل	
1- UNIT I. TRANSPORT AND TRANSLOCATION OF WATER AND SOLUTES			Chapter 3. Water and Plant Cells	
2- UNIT 2. TRANSPORT AND TRANSLOCATION OF WATER AND SOLUTES			Chapter 4. Water Balance of Plants	
3- UNIT 3. TRANSPORT AND TRANSLOCATION OF WATER AND SOLUTES			Chapter 5. Mineral Nutrition	
4- UNIT 4. TRANSPORT AND TRANSLOCATION OF WATER AND SOLUTES			Chapter 6. Solute Transport	
5- UNIT 5. BIOCHEMISTRY AND METABOLISM			Chapter 7. Photosynthesis: The Light Reactions	
6- UNIT 8. BIOCHEMISTRY AND METABOLISM			Chapter 8. Photosynthesis: The Carbon Reactions	
7- UNIT 7. BIOCHEMISTRY AND METABOLISM			Chapter 12. Respiration and Lipid Metabolism <i>Note:</i> Respiration sections only	
8- UNIT 8. BIOCHEMISTRY AND METABOLISM			Chapter 13. Assimilation of Inorganic Nutrients <i>Note:</i> Nitrogen section only	
9- UNIT 9. GROWTH AND DEVELOPMENT			Selected Topics from Unit III	
10- UNIT 10. GROWTH AND DEVELOPMENT			Chapter 24: Abiotic Stress	
15. Weekly Schedule			4. الجدول الأسبوعي	
Week الأسبوع	Date التاريخ	Topics Covered الموضوعات المتناولة	CILOs مخرجات التعلم للمقرر (CILOs)	Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم

1	<ul style="list-style-type: none"> • Breaking the ice with students <p>What is Plant physiology</p>	1	Traditional تقليدي
2	<ul style="list-style-type: none"> • Structure and properties of water • Water Transport processes: <ul style="list-style-type: none"> - Diffusion - Bulk flow - Osmosis <p>Water potential concept</p>	1	Traditional تقليدي
3	<ul style="list-style-type: none"> • Solving problems related to water potential 	1	Traditional تقليدي
4	<ul style="list-style-type: none"> • Water in the soil <p>Water absorption by roots</p>	1	Traditional تقليدي
5	<ul style="list-style-type: none"> • Water transport through the xylem <p>Water movement from the leaf to the atmosphere</p>	2	Traditional تقليدي
6	<ul style="list-style-type: none"> • Essential elements classifications and roles. <p>Nutrient deficiencies and plants disorders.</p>	2	Traditional تقليدي
7	<ul style="list-style-type: none"> • Treating nutrients deficiency. <p>Soil, root and microbes</p>		Traditional تقليدي
8	Solute transport	3	Traditional تقليدي
9	<p>Photosynthesis:</p> <p>Light reactions</p> <ul style="list-style-type: none"> • PS in higher plants, general concept • PS pigments and Light absorption • PS apparatus • Organization of light absorption antenna • Mechanism of electron transport <p>Proton transport and ATP synthesis</p>	4	Traditional تقليدي
10	<p>Photosynthesis:</p> <p>Carbon reaction:</p> <ul style="list-style-type: none"> • The Calvin cycle • C2 oxidative photosynthetic carbon cycle <p>CO2 concentrating mechanisms: in Algae, Cyanobacteria, C4 and CAM plants</p>	4	Traditional تقليدي

11	Photosynthesis: Carbon reaction: • C4 and CAM carbon cycles Starch and sucrose synthesis	4	تقليدي Traditional
12	Plant growth hormones and their relation to plant development. Plant development and morphogenesis.	5	تقليدي Traditional
13	Plant growth hormones and their relation to plant development. Plant development and morphogenesis.	5	تقليدي Traditional
14	Assimilation of Inorganic Nutrients <i>Note:</i> Nitrogen section only • Nitrogen in the environment • Nitrate and ammonia assimilation Biological nitrogen fixation	4	تقليدي Traditional
15	Respiration and Lipid Metabolism <i>Note:</i> Respiration sections only • Overview of plants respiration, Glycolysis, the Citric acid cycle, electron transport and ATP synthesis Special emphasis on plants respiration - intact plants and tissues.	4	تقليدي Traditional
16			تقليدي Traditional
16. Academic Integrity Statement		5. بيان النزاهة الأكاديمية	
Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, Anti-plagiarism Policies , and Students' Rights and Responsibilities Handbook . The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations.		يتعين على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقاً للوائح سلوك الطلاب والنزاهة الأكاديمية، سياسات مكافحة الانتحال، ودليل حقوق الطلبة واجباتهم، المعمول بها في جامعة البحرين. يمكن لعواقب الغش والسرقة الأدبية والتعاون غير المصرح به وغيرها من أشكال عدم الأمانة الأكاديمية أن تكون خطيرة للغاية وسيتم التعامل معها وفقاً للسياسات واللوائح المذكورة آنفاً.	
17. Attendance and Absence Regulations		6. نظام الحضور والغياب	
Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33) of Regulations of Study and Examination at the University of Bahrain .		يجب على الطلبة الالتزام بالحضور المنتظم للمحاضرات الصفية والعملية، حسبما تحدده طبيعة المقرر الدراسي، ووفقاً للمادة (33) من نظام الدراسة والامتحانات في جامعة البحرين .	