

نموذج توصيف مقرر
Course Description Form

Name of College\Faculty : Science

اسم الكلية: العلوم

Name of Department: Dep. Of biological sciences

اسم القسم العلمي: العلوم البيولوجية

Course name	Introduction to Plant Physiology مقدمة في فسيولوجيا النبات	اسم المقرر
Course No.	0494271	رقم المقرر
No. of Credits	3	عدد الوحدات
Theoretical Hours	2	عدد الساعات النظرية
Practical Hours	3	عدد الساعات العملية
Prerequisites	0494102 AND 0420114	متطلبات المقرر
Course topics	مواضيع المقرر	
1. Diffusion, Thermodynamics and water 2. Plant water relations 3. Mineral nutrition and ion uptake 4. Solute transport 5. Nitrogen metabolism 6. Protein and nucleic acids 7. Introduction to enzymes 8. Carbohydrates 9. Photosynthesis 10. Translocation of sugars 11. Respiration 12. Growth and plant hormones		
Text book:	عنوان الكتاب:	
(Name, Author, Year, Publisher)	(الاسم، المؤلف، سنة الطبع، دار النشر)	
Taiz, L., Zeiger, E., Møller, I, and Murphy, A. 2014. Plant Physiology and Development. 6 th edition. Sinauer Associates is an imprint of Oxford University Press. UK.		

References: (Name, Author, Year, Publisher)	عنوان المرجع: (الاسم، المؤلف، سنة الطبع، دار النشر)

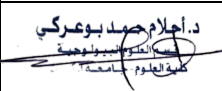
Grading			آلية رصد المقرر	
Exams	20	%		الاختبارات
Quizzes		%		امتحانات قصيرة
H.W.	10	%		واجبات
Lab /Project (field study)	30	%		مختبر / مشاريع (دراسة ميدانية)
Final	40	%		الاختبار النهائي
100%				

أهداف مخرجات المقرر				
الرقم	أهداف مخرجات المقرر	أمثلة من المقرر لتحقيق هذه الأهداف	المستوى المطلوب من عضو هيئة التدريس لتحقيق الهدف	
			منخفض (ن)	متوسط (م)
1				
2				
3				
4				
5				
منسق المقرر (اسم عضو هيئة التدريس المشرف على توصيف المقرر وتوقيعه)				
الرتبة الأكاديمية				
تاريخ إعداد النموذج		/ /		

Course objectives					
No:	Course Objectives (Learning Outcomes)	Example(s) of relevant (Topics and Activities)	Recommended Level to satisfy the objectives		
			High	Medium	Low

1	Explain fundamental molecular movements, including Diffusion, Osmosis, and Imbibition. the principles of the thermodynamics laws of energy.	Diffusion, osmosis, imbibition and plasmolysis		✓	
2	Relate the structure and unique properties of water to its interactions within the plant system including the demonstration and measurement of plasmolysis and osmotic potential	The structure and properties of water. water interactions (plasmolysis and osmotic potential)	✓		
3	Describe the mechanisms for the absorption and translocation of water throughout the plant and analyze the processes of water loss (guttation and transpiration), detailing the stomatal mechanism, factors affecting the transpiration rate, and its biological significance	Water translocation and water loss through guttation and transpiration, stomatal mechanism	✓		
4	Identify and classify the essential elements required for plant growth, including methods of detection and their physiological effects. Compare and contrast the mechanisms of passive and active absorption of mineral salts and explain the factors affecting ion	Macronutrients and micronutrients needed by plants and their transportation	✓		

	uptake and translocation. Evaluate the function of essential elements and recognize the corresponding symptoms of deficiency				
5	Outline the process of nitrogen nutrition and the role of nitrogen converters in the soil	Nitrogen as an essential elements		✓	
6	Summarize the synthesis pathways for amino acids and their relation to proteins and amines. describe the structure and function of essential macromolecules: proteins and nucleic acids	Amine, amino acids, proteins and nucleic acid		✓	
7	Explain the nature, nomenclature, and classification of enzymes, detailing their distribution in the cell and the factors that affect their activity	Plant enzymes and factors affecting them		✓	
8	Classify carbohydrates and detail the synthesis and degradation pathways of key compounds like sucrose, starch, cellulose, and pectic substances	Sucrose, starch, cellulose and pectin		✓	
9	Analyze the substances translocated in the phloem and explain the proposed mechanism of phloem transport	Processed food translocation (source-sink)		✓	

10	Identify the pigments and describe the structure of the photosynthetic apparatus. Differentiate between the light-dependent (Electron transport and Photophosphorylation) and light-independent (Carbon fixation) reactions of photosynthesis. Explain the mechanisms of ATP and NADPH production	Light reaction and Calvin cycle reaction	✓		
11	Compare and contrast the three major carbon fixation pathways: the Calvin cycle, the C4 dicarboxylic acid pathway, and Crassulacean Acid Metabolism (CAM). Analyze the factors that affect the rate of photosynthesis	C3, C4 And CAM photosynthesis	✓		
12	Define the process of growth and specify the mode of action for the major plant hormones: auxins, gibberellins, cytokinin, ethylene, and abscisic acid	Auxins, gibberellins, cytokinin		✓	
Coordinator (Name and Rank):		Dr. Ahlam Bouariky Assistant professor			
Signature:			Date:	9/ 11 /2025	