

Description course of Forest Physiology

1. Course Name :					
Forest Physiology					
2. Course Code :					
FRPH304					
3. Semester/Year:					
Second semester / third stage / 2023-2024					
4. The date this description was prepared					
1-2-2024					
5. Available attendance forms					
My presence					
6. Number of study hours (total)/number of units (total):					
2 theoretical hours / 3 practical hours (5 hours) / 3.5 units					
7. Name of the course administrator (if more than one name is mentioned)					
Munther Younis Muhammad/Nazari M. Dr.. Raghad Abdel Razzaq Jamal/ practical					
8. Course objectives					
<ul style="list-style-type: none"> • The student learns about the plant cell, its types and components • Understands water relationships and distinguishes between solutions and their types • Understanding the process of water absorption in forest trees as well as the process of water loss • Is familiar with the mineral nutrition that the plant needs and the symptoms of its deficiency • Learn about the phloem sap and the mechanism of transport of nutrients within the plant • Is familiar with the process of photosynthesis and respiration • Learn about the growth and development of trees • Is familiar with plant hormones, their types, and their physiological effects • Identify enzymes and vitamins and their benefits for plants • Distinguish the physiology of dormancy in seeds and buds 					
9. Teaching and learning strategies					
<ul style="list-style-type: none"> - Interactive lecture - presentations of anatomical models of tree parts - Brainstorming - assigning specific tasks and preparing reports about them - Dialogue and discussion - self-learning - Field training - practical exercises 					
10. Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week

Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Types of cells and components of the plant cell	A1: plant cell	2 Theoretica 1	1
A short practical test	Interactive lecture, brainstorming, dialogue and discussion, self- learning, practical training	Concept science Physiology Practical experiments on plant cells	A1: science Faslja the plant	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self- learning	aTypes of solutions, acids, bases and salts	A2: Solutions and their types	2 Theoretica 1	2
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self- learning, practical training	types of solutions, Experiences practical in to prepare Solutions	A2: Solutions the organization And acidity	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Diffusion, osmosis, imbibition and permeability	A3: Water relations	2 Theoretica 1	3
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self- learning, practical training	Subdivisions Systems Colloids, properties of colloidal systems	B1: Effort Watery And how Measure it In the way Weight	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Water absorption by the roots, Types of absorption, Components of xylem, Mechanism of ascension of wood sap	B1: Water absorption	2 Theoretica 1	4
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self- learning, practical training	The importance of propagation for plants, Spread Gases And materials Solid And fluids	A3: phenomena Consequences on the pressure Radical	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Ways of losing water, Transpiration and its types, Factors affecting the opening and closing of stomata	A4: Water loss	2 Theoretica 1	5
Semester test practical test	Interactive lecture, brainstorming, dialogue and	The concept of water potential, Experiences To measure Effort Watery	A4: Importance Breathing With plants	3 practical	

	discussion, self-learning, practical training				
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Types of living organisms and their methods of nutrition, Divisions of nutrients, Ways to absorb nutrients	B2: Mineral nutrition that the plant needs	2 Theoretical 1	6
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Mineral elements found in the plant, Importance Elements Mineral And symptoms Its lack on the plant	A5: Systems Colloidal	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	ingredients Fabric Cortex, materials Movable in Tissue Cortex, mechanical transition The juicer Food in Bark	A5: bast sap	2 Theoretical 1	7
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	The concept of breathing and its importance, fate energy Resulting from practical Breathing	A6: Transpiration And knock measurement Transpiration	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Chloroplasts, light, plant pigments, stages of the photosynthesis process	B3: practical Photosynthesis	2 Theoretical 1	8
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	microscope installation, Experiences practical To check some Slides	A7: Permeability And the factors Influential on Permeability	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	The importance of breathing, Breathing mechanics	B4: Breathing process	2 Theoretical 1	9
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	appreciation loss Content Al-Rutoubi Soil, saturation and its conditions	B2: feed the plant And the elements Mineral existing With plants	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Definition of growth, growth dynamics, types of growth, tree life stages	A6: Plant growth and development	2 Theoretical 1	10

Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	The concept of osmosis, an experience practical To clarify osmosis	B3: Microscope And the microscope The compound	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Introduction to plant hormones, auxins, and cytokinins	B6: Plant hormones	2 Theoretical	11
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	to divide Solutions with regards To focus the juice Cellular Methods for preparing the normal solution	B4: relationship the plant With water	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Gibberellins and their physiological effects	A8: Plant hormones	2 Theoretical	12
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Concept The plasma And Its types In addition to Visit Scientific	B5: osmosis And the membrane The resemblance port	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Absciscic acid, ethylene gas	A9: Plant hormones	2 Theoretical	13
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Concept Permeability And factors Influential on her A practical experiment on permeability	A8: Species Solutions with regards To focus the juice Cellular To plant what	3 practical	
Semester test Final test	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Benefits of enzymes, properties of enzymes, classification of enzymes, vitamins	B5: Enzymes and vitamins and their benefits for plants	2 Theoretical	14
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Transpiration and methods of measuring it, an experience practical around Importance Stomata	A9: The plasma And its types In addition to Visit Scientific	3 practical	
Semester test Final test	Interactive lecture, brainstorming,	Dormancy in seeds, dormancy in buds	A10: Physiology of dormancy in seeds and	2 Theoretical	15

	dialogue and discussion, self-learning		sprouts	1	
Semester test practical test	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	tears, an experience practical Show phenomenon Tears	A10: By spreading And its importance For plant	3 practical	

11. Course evaluation

Relative weight %	Class	Calendar date (week)	Calendar methods	T
2.5	2.5	fourth week	Report 1	1
2.5	2.5	The fifth week	Report 2	2
2	2	the sixth week	short test (1) Quiz	3
2	2	The fourteenth week	Short test (2) Quiz	4
1	1	The fifteenth week	Short test (3) Quiz	5
7.5	7.5	the sixth week	Semester test (1)	6
7.5	7.5	The eleventh week is difficult	Semester test (2)	7
40	40	Final semester exams	Final theoretical test	8
5	5	The fifteenth week	Practical field drawing	9
2	2	The third and fifth week	Laboratory evaluation	10
1	1	The first week	Practical short test (1) Quiz	11
0.5	0.5	fourth week	Practical short test (2) Quiz	12
1	1	The fourteenth week	Practical short test (3) Quiz	13
5.5	5.5	Weeks 6, 8, 9, 10, 11, 12 and 13	Live drawings and homework	14
20	20	Final semester exams	Final practical test	15
100%	100%	100	the total	

12. Learning and teaching resources

Plant Physiology Book - Dr. Abdul Azim Kazem Muhammad - 1985 Practical experiments in plant physiology - Dr. Abdul Azim Kazem Muhammad - 1985	quired textbooks (methodology, if any)
Physiology of Woody Plants 3rd Edition - October 17, 2007 Author: Stephen G. Pallardy •	in references (sources)
	Recommended supporting books and references (scientific journals, reports....)
	ctronic references, Internet sites

actical subject teacher
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eoretical subject teacher
Munther Younis Muhammad

ad of the Department of Forestry Sciences
: Dr. Muzahim Saeed Younis

airman of the Scientific Committee
: Dr. Muhammad Younis Al-Allaf