

Describe the environment of insects

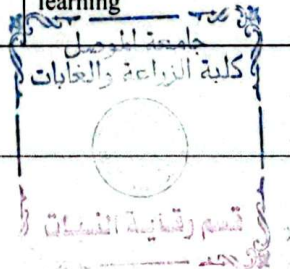
1.	: Course Name
	Insect ecology
2.	: Course Code
	NEC418
3.	Semester / Year : Annual
	Fall semester/2023-2024
4.	Date this description was prepared
	2024 / 2 / 1
5.	Available forms of attendance:
	My presence
6.	:(hours (total)/number of units (total Number of study
	75 hours / 3.5 units
7.	(Name of the course administrator (if more than one name is mentioned
	Assistant Professor Doctor. Mohammed Yousuf Sayed Ghani <u>mohammed_yousuf76@uomosul.edu.iq</u> Assistant Lecturer. Ahmed Thamer Hammadi <u>ahmed.thamer@uomosul.edu.iq</u>
8.	Course objectives
	<ul style="list-style-type: none"> • that must be available to be able to define the concept of insect environment and the information should know the types of insects • .Choosing the suitability of factors affecting the insect environment • Differentiating between different planning systems and the appropriate ones • .establishing an insect laboratory Understand the basics of planning and use them in • Distinguishing between types of insects according to the information acquired during the study of their environment and learning about the nature of their livelihood and reproduction • trainee needs and what is available to him to master his work in dealing Familiarity with the information the .with insects and their environments • .The student's awareness of the factors affecting insects and their environment and how to deal with them • catching tools, what should be taken into account when catching them in -Determine the appropriate type of insect in the field, and identifying their types • A comprehensive study of various types of insects and determining the controls and conditions that must be .oryenvironment laborat met in the insect
9.	Teaching and learning strategies
	<ul style="list-style-type: none"> - Interactive lecture - Brainstorming - Dialogue and discussion - Field Training - Practical exercises - Field project - education -Self
10.	Course structure



week	hours	Required learning outcomes	Name of the unit or topic	method Learning	Evaluation method
1	theoretical 1	a1: Learn about the concept of insect ecology : .and the origin of insects b1: He possesses the practical and mental : in the knowledge and concepts that help him .units of insect formation	History of insect ecology Population composition units	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	a2: The student gets acquainted with the foundations of environmental science, its divisions, the types of environment . Types of migrations	Introduction to divisions of ,ecology ecology, types of oceans, types of migrations	Interactive lecture, brainstorming, dialogue and discussion, field learning -training, self	Short practical test 1
2	theoretical 1	a2: Determines systems for the distribution : of insect and spread of insects and types habitats b1: He possesses the practical and mental : identify knowledge and concepts that help him .the population spread of insects c1: process of insect spread in Balances the : .different environments	Environmental factors determining insect growth Population spread	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	a2: The student gets acquainted with important matters in the insect survey process b3: The student applies the steps of the insect survey process	Insect trapping process Important matters in the inventory process, types of inventory	Interactive lecture, ue brainstorming, dialog and discussion, field training, practical -exercises, and self learning	Direct drawing And my homework
3	theoretical 1	a2: Determines the regulations and laws of : environmental factors and insect inventory	Laws of specific environmental factors inventory Insect	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	a2: The student learns about methods of counting insects in general a5: The student distinguishes between methods of counting and estimating the size of different insects	Methods of enumerating and estimating the size of insects, using samples, relative counts, absolute counts, and estimating the appearance of the infestation	Interactive lecture, brainstorming, dialogue ssion, field and discu learning -training, self	My laboratory work
4	theoretical 1	a2: Determines the methods of insect : reproduction c1: Draws methods for using samples in : insects	Insect reproduction ability Methods of counting how to use -insects samples	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam report ,
	practical 3	a2: The student learns about methods of separating insects from plant parts b3: The student applies the steps in the process of separating insects from plant parts	Methods of separating insects from plant parts , repellent chemicals, brushes, washing, and .imprinting	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Practical short test 2 direct , drawing
5	theoretical 1	a2: Determines methods for studying insect : ecology c1: Draws methods for using samples in : insects In plant residues, above the soil surface, and inside plant tissues	Methods of studying ecology associated -Plant insects -Plant waste insects	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam report ,



			above the soil surface plant tissues -		
	practical 3	b2: Write a report on the field visit and the insects that were observed in the field .	A field visit for students to see the insects spread in the fields inside the university	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Field evaluation
6	theoretical 1	a2: Determines ecological succession in : insects c1: Draw plans for the natural balance of : insects in their environments d1 Acquire skills to estimate insect numbers :	Ecological succession natural selection and - equilibrium natural Estimate numbers Insects in the terrestrial and aquatic environment	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Short test, final test
	practical 3	a2: Learn about the insects in the live and dead animals b4: The student distinguishes between the two insects in living and dead animals	-Estimation of animal associated insects , enumeration of insects from living hosts Insect counts from dead hosts .Codification	Interactive lecture, brainstorming, dialogue sion, field and discu training, practical -exercises, and self learning	Direct drawing and homework
7	theoretical 1	Semester test1	Semester test1	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam
	practical 3	a2: The student learns about the process of Myiasis in animals .	Myiasis process + Semester test1	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, field project, learning-self	Semester test1
8	theoretical 1	a3: Employs appropriate tools and skills for : methods of estimating insect numbers c1: Draws plans and programs for host : selection and how to estimate the number of insects in terrestrial environments	Host selection and specialization Proportional enumeration method Methods for estimating the number of insects in the terrestrial environment	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam
	practical 3	b2: The student explains the process of estimating insects in the aquatic environment b4: The student distinguishes between methods for estimating the number of insects in the aquatic environment	Estimating the number of insects in the aquatic environment , the living -number of free the water insects in Preparation of aquatic plant insects Number of benthic insects	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
9	theoretical 1	a4: to management system is used pest A : .control them c1: Use what the researcher needs to choose : floating traps for insects	Integrated pest management and control system The forgetful census methods of -method	,Interactive lecture brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam



			fishing in traps Baits Traps		
	practical 3	a2: The student learns about the methods used in proportional enumeration	Methods used in proportional enumeration	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
10	theoretical 1	a2: Defines garden systems, types of gardens, : various design principles and elements, and their urban and environmental importance c1: Successfully balances the investment and : use of ornamental plants and employs them in a way that suits the coordination processes of .different types and styles of gardens	Types of public gardens and their foundations	Interactive lecture, dialogue ,brainstorming -and discussion, self learning	Semester test 2
	practical 3	a2: The student learns about insect traps b4: The student distinguishes between the types of traps used in general	Insect traps , division of traps in general	,Interactive lecture brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
11	theoretical 1	a2 Determines the systems and laws for pest : control c1: Balances the methods of using traps and : estimate the number of insects light traps to	Biocontrol of insects Traps Optical	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Final test
	practical 3	b4: The student distinguishes between pheromone and optical traps, their types, the purpose of their uses, and their principle of operation.	Pheromone traps , light traps pheromone traps .Types of light traps	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
12	theoretical 1	a2: Determines the effect of environmental : factors such as temperature and humidity on insects c1: Balances and determines the method for : of injury estimating the manifestations	Effect of temperature and humidity Manifestation of injury	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Final test
	practical 3	a2: The student gets acquainted with the way of estimating insects with the appearance of the injury b4: The student distinguishes between insect estimation over different parts of the plant	Estimating insects by the appearance of infestation , on leaves, stems, fruits, .and waste	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -elfexercises, and s learning	Direct drawing and homework
13	theoretical 1	a2 :Determines the effect of light factor on : insects c3 Uses what the researcher needs in field : and laboratory work for environmental studies of insects	Light effect Field and laboratory for work environmental studies	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Final test
	practical 3	a2: The student learns about the method of transporting insects in their various stages b5: The student collects models of insects in order to transport them to the laboratory	Field and laboratory work for environmental studies insect transportation , static and mobile) (stages	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -nd selfexercises, a learning	Direct drawing and homework
14	theoretical 1	c1: Uses what the researcher needs to : critical economic limit of the calculate the damage c1: Balances the insect feeding process and :	Effect of food on insects Calculate the critical economic limit of	Interactive lecture, brainstorming, dialogue and discussion, self learning	Short test, final test

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		the effect of these factors on it	damage		
	practical 3	b2: Writes a report on the most important field and laboratory work in environmental studies	Field and laboratory work for environmental studies transmission of , parasites and predators	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Homework
15	theoretical 1	test2 Semester	Semester test2	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Short test, final test
	practical 3	a2: The student learns about the process of transporting parasites and predators b6: The student masters the process of transporting parasites and predators to the laboratory	Transmission of parasites and predators + Semester test2	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, field project, learning-self	Semester test 2 Final test


11. Course evaluation

T	Calendar methods	(Calendar date (week	Class	Relative % weight
1	Short test(1)Quiz	the sixth week	2	2
2	Short test(2)Quiz	The fourteenth week	2	2
3	Semester test (1)	The seventh week	10	10
4	Semester test (2)	The eleventh week	10	10
5	Final theoretical test	Final semester exams	40	40
6	Report and discuss	The fifteenth week	5	5
7	Report and discuss	The third and fifth week	5	5
8	Short practical test (1)Quiz	The first week	2	2
9	Short practical test (2)Quiz	fourth week	2	2
10	Short practical test (3)Quiz	The fourteenth week	2	2
11	Final practical test	Final semester exams	20	20
	the total	100	100%	100%


12. Learning and teaching resources

(Required textbooks (methodology, if any	Muhammad Abdel Karim .Insect Ecology book by Dr
(Main references (sources	- Insect Ecology book by Dr. Muhammad Abdel Karim
Recommended supporting books and references (scientific journals, (...reports	Insect Ecology: An Ecosystem Approach /Timothy D. Schowalter
references, Internet sites Electronic	https://www.amazon.com/s?i=stripbooks&rh=p_27%3ATimothy+D.+Schowalter&s=relevancerank&text=Timothy+D.+Schowalter&ref=dp_byline_sr_bk_1


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