Description of the insect physiology course

1. : Course Name
Insect physiology
2. : Course Code
INSP317
3. Semester / Year : Annual
Fall semester/2024-2025
4. Date this description was prepared
2025/ 2 / 1
5. Available forms of attendance
My presence
6. :(Number of study hours (total)/number of units (total
75 hours / 3.5 units
7. (Name of the course administrator (if more than one name is mentioned
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8. Course objectives
• physiology and the information that must be available to be able to define the concept of insect **should** . know the types of insects • . physiology Choosing the suitability of factors affecting insect • the appropriate ones Differentiating between different planning systems and • .Understand the basics of planning and use them in establishing an insect laboratory • Distinguishing between types of insects according to the information acquired during the study of insect . functions physiology and anatomy and identifying their • Familiarity with the information the trainee needs and what is available to him to master his work in insect . dissection • .The student's awareness of the factors affecting insect physiology and how to deal with them • e the appropriate type of insect dissection tools and what should be taken into account when dissecting Determin the laboratory and identifying their types them in • ons that must be A comprehensive study of various types of insects and determining the controls and conditi . physiology laboratory met in the insect
9. Teaching and learning strategies
- Interactive lecture - Brainstorming - Dialogue and discussion - Field Training - Practical exercises - Field project - education -Self
10. Course structure

	hours	Required learning outcomes	Name of the unit	Learning method	Evaluatio

			or topic		n method
1	theoretical 1	a1 Identify the stages of insect embryonic : development b1 He possesses the practical and mental : identify knowledge and concepts that help him insect's internal systems the	-Embryonic growth the shape and -structure of the egg fertilization and maturation of the early -eggs embryonic growth the process -centers of castrola formation the formation of the - the -nervous system formation of the the -onchi br formation of the middle germinal layer .and body cavities The effect of pesticides on some .internal systems	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	A10: The student is familiar with the division of insects, their taxonomic position in the animal kingdom, and the characteristics of the class of insects	Modern classification of insects within the animal kingdom and characteristics of insect orders	Interactive lecture, rainstorming, dialogue b and discussion, field learning -training, self	Short practical test 1
2	theoretical 1	a2 Determines the insect's internal organs : and the parts of the insect's digestive system b1 He possesses practical and mental : identify knowledge and concepts that help him the parts of the digestive system of insects	The digestive system the alimentary canal - -the salivary glands - food sources for the -insects physiology of digestion and -bsorption a the -microbiology effect of nutritional .deficiency in insects	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	b1 has Knowledge And concepts the : that Help him in operation And mentality knowledge ingredients the device Digestive And jobs all part	Components of the digestive system , Careers all part , mechanism digestion in Insects	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -cises, and selfexer learning	My laboratory work
3	theoretical 1	a1 the excretory system of insects Identify : b1 He possesses the practical and mental : knowledge and concepts that help him identify mechanical excretory organs the	- Excretion in insects excretion of -nitrogenous wastes -excretory organs mechanism of regulation of salt and -excretion water balance in .insects	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	C3: Use the student's dissection tools and the available laboratory devices to master the process of showing the digestive system from the body of the insect.	Dissecting an insect under a microscope and students viewing the parts of the digestive system	e lecture, Interactiv brainstorming, dialogue and discussion, field learning -training, self	My laboratory work

4	theoretical 1	a1 Identify the circulatory system of insects : b1 He possesses the practical and mental : knowledge and concepts that help him identify the types of blood cells in insects and the .function of each of them	-Circulatory system diaphragms and blood auxiliary -cavities blood -hearts functions -circulation of the circulatory types -blood -system -of blood cells functions of blood tissues related - cells to the circulatory .system	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam report ,
	practical 3	C2: The student diagnoses the structures of the circulatory system in insects (heart and aorta).	Structure of the circulatory system in insects (heart, aorta), mechanics of blood circulation, types of blood cells, blood functions	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -lfexercises, and se learning	My laboratory work
5	theoretical 1	a1 Identify the nervous system of insects : b1 He possesses practical and mental : knowledge and concepts that help him identify the types of nervous systems in insects and the impulses nerve methods of transmitting .between nerve axons	-The nervous system the -the nerve cell central nervous the -system splanchnic or sympathetic nervous the caudate -system -nervous system transmission of .nervous stimulation	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam report ,
	practical 3	C3: The student uses the dissection tools he needs and the laboratory equipment available to him to master the dissection process and demonstrate the circulatory system in the insect's body.	Dissecting an insect under a microscope and students viewing the parts of the circulatory system	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Laboratory evaluation
6	theoretical 1	a1 Identify the types of nervous systems in : insects b1 He possesses practical and mental : identify knowledge and concepts that help him the sensory organs in the insect's body and the .function of each one	The superficial sensory nervous optical sense -system methods of -organs -image formation chemical sense mechanical -organs -sense organs temperature and humidity sense auditory -organs sound -sense organs generation organs in .insects	Interactive lecture, rming, dialogue brainsto -and discussion, self learning	Short test, final test
	practical 3	C2: The student diagnoses the locations of the respiratory structures in insects (stomata, bronchioles, gills)	Respiratory system in insects Mechanics of breathing, structure and function	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self	ect Dir drawing and homework

			respiratory stoma,) bronchi, bronchioles, body wall, gills, types of respiratory ,systems	learning	
7	theoretical 1	a1 Identify the excretory organs in insects : b1 He possesses the practical and mental : identify knowledge and concepts that help him .the excretory mechanism in insects	Excretory organs in insects and the excretory mechanism, structure and function Malpighian tubules,) (fat bodies, renal cells	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam
	practical 3	A41: Explains the structure of the respiratory system, its working mechanism, and the types of respiratory systems in insects.	Dissecting the insect under the microscope and students watching the parts of the respiratory system	Interactive lecture, brainstorming, dialogue and discussion, field g, practical trainin exercises, field project, learning-self	Direct drawing And my homework
8	theoretical 1	a1 .Identify the stages of feeding in insects : b1 He possesses practical and mental : knowledge and concepts that help him .nutrition in insects recognize the basic rules of	the basic -Nutrition the -rules of nutrition i	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam
	practical 3	C3: The student uses the dissection tools he needs and the laboratory equipment available to him to master the dissection process and show the main and secondary excretory organs in the insect's body.	Dissecting the insect under the microscope and the students watch the main and secondary excretory organs	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	My laboratory work
9	theoretical 1	c3 Uses the information the designer needs : and what is available to him to perfect his work + first exam	mportant nutritional .needs of insects+ first exam	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam
	practical 3	C3: The student uses the dissection tools he needs and the laboratory equipment available to him to master the dissection process and show the components of the muscular system in the insect's body.	First monthly exam+ Components and functions of the muscular system in insects	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Semester test 1
10	theoretical 1	a1 Identify the components of the : reproductive system in insects b1 possesses practical and mental He : knowledge and concepts that help him learn about the physiology of the insect reproductive .system and the mechanism of laying eggs	The female -reproductive system the -the ovarian tubes process of egg the -formation ess of egg laying proc the male - -reproductive system the process of sperm .formation	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester test 2
	practical 3	C2: The student diagnoses the structures of the female reproductive system in the insect body (ovarian tubes - the process of forming eggs - the process of laying eggs)	Components and functions of the female reproductive system	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -and self ,exercises learning	Field visit to the fields
11	theoretical 1	a1 Identify the components of the bronchial : system in insects b1 He possesses practical and mental :	The bronchial system the -its structure - structure of the	Interactive lecture, brainstorming, dialogue -and discussion, self	Final test

		knowledge and concepts that help him identify of the breathing mechanism in different types insects	-respiratory stomata the mechanism of controlling the opening of the -respiratory stomata respiration in -terrestrial insects respiration in aquatic respiration in -insects asitized endopar hemoglobin -insects as a respiratory .pigment in insects	learning	
	practical 3	C2: The student diagnoses the structures of the male reproductive system in the insect body (the reproductive system), distinguishing the male from the female,	the components and functions of the male reproductive system.	Interactive lecture, g, dialogue brainstormin and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
12	theoretical 1	a1 Learn about the structure of the muscular : .system in insects b1 He possesses practical and mental : that help him learn knowledge and concepts about muscular preparation and control of .walking and flying	The muscular system -muscle structure - bronchi in the muscle -muscles nervous -support preparation of the types of -muscles control of -muscles .walking and flight	teractive lecture, In brainstorming, dialogue -and discussion, self learning	Final test
	practical 3	C3: The student uses the dissection tools he needs and the laboratory equipment available to him to master the dissection process and show the components of the nervous system in the insect's body.	Components of the nervous system in insects, sections of nerve cells, sections of the nervous system and the function of each section	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
13	theoretical 1	a1 types of glands and hormones Identify the : in insects b1 He possesses practical and mental : knowledge and concepts that help him identify the functions of glands in insects	-Development -endocrine glands types of hormones and their functions .Silence in insects -	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Final test
	practical 3	C58: The student understands the stages of the feeding process in insects.	Nutrition in insects, the stages of the feeding process	,Interactive lecture brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
14	theoretical 1	a1 Identify the components of the insect's : .body wall b1 He possesses the practical and mental : concepts that help him in knowledge and identifying the chemical composition of the .insect's body wall	its -Body wall structure of -benefits - the body wall	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Short test, final test
	practical 3	A41: Explains the structure of the muscular system, its mechanism of action, and the types of muscle tissue in insects.	Dissecting the insect under the microscope and students watching	Interactive lecture, brainstorming, dialogue and discussion, field	My laboratory work

			the parts of the muscular system.	training, practical -exercises, and self learning	Short practical test 3
15	theoretical	c3 Uses the information the designer needs : perfect his and what is available to him to work + second exam	chemical composition of the insect body the moulting -wall .process + second exam	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Short test, final test
	practical 3	C3: The student uses the modern dissection tools he needs and the modern and advanced laboratory techniques and devices available to him to master the dissection process and demonstrate the components of the nervous system and the adverse reactions in the insect's body.	Modern techniques and tools for insect dissection and students' observation of parts of the nervous system + the second monthly exam	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, field project, learning-self	er Semest test2 Final test

11. Course evaluation

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

12. Learning and teaching resources

(Required textbooks (methodology, if any	Abdel written by Dr. Thabet / Book of insect physiology and organ functions Darkzali-Moneim Al
(Main references (sources	- Book of insect physiology and organ functions / written by Dr. Darkzali-Thabet Abdel Moneim Al
Recommended supporting books and references (scientific journals, (....reports	Insect Physiology and Biochemistry /By James L. Nation ,Sr.
Electronic references, Internet sites	https://www.routledge.com/Insect-Physiology-and-Biochemistry/NationSr/p/book/9781032247045

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