
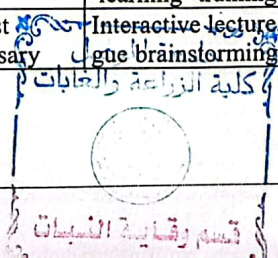


## Description of the beekeeping course

<b>1. Course name:</b>					
Beekeeping					
<b>1. Course code:</b>					
APIC312					
<b>1. Semester/Year: Annual</b>					
Spring semester/2023-2024					
<b>1. The date this description was prepared</b>					
1/2/2024					
<b>1. Available attendance forms:</b>					
My presence					
<b>1. Number of study hours (total)/number of units (total):</b>					
75 hours / 3.5 units					
<b>1. Name of the course administrator (if more than one name is mentioned)</b>					
Assistant Professor Doctor. Mohammed Yousuf Sayed Ghani mohammed_yousuf76@uomosul.edu.iq					
Assistant Lecturer. Ahmed Thamer Hammadi ahmed.thamer@uomosul.edu.iq					
<b>1. Course objectives</b>					
<ul style="list-style-type: none"> <li>• The learner should be able to define the concept of beekeeping and the information that must be available to practice the beekeeping profession.</li> <li>• Choosing the appropriateness of the factors affecting beekeeping and its products.</li> <li>• Differentiate between different planning systems and the appropriate ones</li> <li>• Understand the basics of planning and use them to create an ideal apiary</li> <li>• Distinguishing between types of bees and their products according to the information gained.</li> <li>• Familiarity with the information a beekeeper needs and what is available to him to master his work</li> <li>• The beekeeper's awareness of the factors affecting the beekeeping profession</li> <li>• Determine the appropriate type of bees and what should be considered when choosing the appropriate breed</li> </ul> <p>A comprehensive study of the various types of bees and their products and determining the controls and conditions that must be observed when establishing apiaries.</p>					
<b>1. Teaching and learning strategies</b>					
<ul style="list-style-type: none"> <li>- Interactive lecture</li> <li>- Brainstorming</li> <li>- Dialogue and discussion</li> <li>- Field Training</li> <li>- Practical exercises</li> <li>- Field project</li> <li>Self-education</li> </ul>					
					
<b>1. Course structure</b>					
week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	theoretical 1	a1: Learn about the concept of beekeeping, its benefits, an introduction and definition of beekeeping, and the historical development of	The importance of the science of bee science The origin and /	Interactive lecture, brainstorming, dialogue -and discussion, self	Semester exam 1, final exam

		bee science b1: He possesses the practical and mental : knowledge and concepts that help him in beekeeping c1: ty members participate and Communi : work to educate them about the importance of increasing apiaries and its impact on increasing production and improving income .and living a2: It contributes to enhancing knowledge of : honey types among community members and ng them aware of the importance of bees maki and increasing production to improve .individual income and serve society	origin of bees / Division and classification of bees / Types of honey bees pread in the wides world / Breeds of honey bees widespread in the world / Standard characteristics of bee breeds / Strain of Iraqi honey bees	learning	
	practical 3	a2: Learn about the concept of beekeeping profession, its benefits, members of the sect b6: The student mastered the dissolved administration and prepare all the necessary needs c1: Community members participate and work to make them aware of the importance of increasing the vegetation and its impact on the revival of the beekeeping profession in general b5: The student enhances the values of understanding among members of society and their awareness of the importance of beekeeping to improve agricultural production, environment and community service	Identifying the members of the honey bee sect, the general structure of the worker's body, the head and its appendages, simple eyes, compound eyes, antennae, mouth parts, jaw glands, .pharyngeal glands	ctive lecture, Intera brainstorming, dialogue and discussion, field learning -training, self	Short practical test 1
2	theoretical 1	a2 Determines the economic importance of : bee products and their benefits b1: He possesses the practical and mental : and concepts that help him identify knowledge the members of the bee colony c1: Successfully balances the investment and : use of bee products and employs them in a way that is compatible with production processes For different types and breeds of bees	important The most honey bee products and their benefits	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	a2: The student identifies the components of the head and chest area and the organs connected to them b3: The student draws the head and chest area b4: The student distinguishes between the organs connected to the head area and the organs connected to the chest area	The thorax and its appendages, the wings and their appendages, the legs and their modifications antennae cleaner, ) pollen basket), other modifications , respiratory stomata, .thoracic glands	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing
3	theoretical 1	a2 Determines the standard characteristics of : the bee colony, the types of bees, and the specifications that must be available in a good . bee strain and their impact on production	Identify the most important members of the honey bee sect, eir specifications, th and the life cycle of each	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam
	practical 3	a2: The student describes the installation of the .abdominal area in the bee and the glands in it b3: The student draws the abdominal area with the internal devices in it	Nasanov's gland , stinging apparatus and its glands, scent glands	Interactive lecture, brainstorming, dialogue and discussion, field learning -training, self	Field evaluation
4	theoretical 1	a2 Determines the information the beekeeper : needs and what is available to him to master	Identify the most important necessary	Interactive lecture, brainstorming, dialo	Semester exam 1 ,



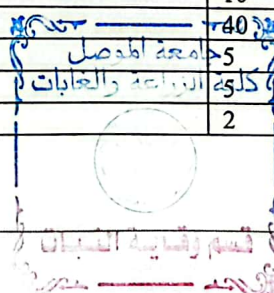
		his work c1: Draws up plans and programs for : development in the field of beekeeping and hive farming in accordance with the environment and society requirements of the b1: Community members participate and : work to educate them about the importance of increasing beehives and its impact on increasing an individual's income and .improving their livelihood a1: It contributes to enhancing knowledge : among community members and making them aware of the importance of bees, improving the environment, and serving the community	supplies and their types to be used in the apiary	-and discussion, self learning	final exam report ,
	practical 3	a2: The student learns about the structure of the internal viscera in the bee's body, the devices present in it, and the functions of each device.	Internal anatomy and specialized organs of worker honey bees, mouth parts	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Practical short test 2 direct , drawing
	theoretical 1	c1: programs for Draws up plans and : developing bee hives that help increase the process of pollinating flowers and other crops b3: Community members participate and : work to educate them about the importance of increasing vegetation cover and its impact on controlling pollution a1: It contributes to enhancing and : developing the culture of beekeepers among community members and the role of bees in plant pollination processes	Honey bees and flowers / Honey bees and vegetable crops / Pollination / Fertilization / The f honey importance o bees in pollinating crops	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 1 , final exam report ,
5	practical 3	b4: The student practically experiences the use of beekeeping tools in the inspection process b3: The student uses modern techniques in beekeeping management and honey production b6: The student masters the use of beekeeping tools	Beekeeper tools and supplies, colony inspection tools, frame cleaning tools, foundation wax production tools, duction and queen pro rearing tools, honey sorting tools, nutrients and their .types	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Field evaluation
	theoretical 1	a2 appropriate times for Determines the : feeding bees c1: Plans the necessary needs for feeding : bees The most important alternatives used in nutrition	Types of nutrition / feeding with carbohydrates and their alternatives / precautions to be taken during feeding	ve lecture, Interacti brainstorming, dialogue -and discussion, self learning	Short test, final test
6	practical 3	a2: The student identifies the components of the old cell and the modern cell b4: The student distinguishes between the old cell and the modern cell	Types of beehives municipal, modern, ) (.and illustrative	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
7	theoretical 1	a3 to stop the Utilizes available capabilities : theft process between bee colonies c1: More than one method is used to control : theft operations between sects+First monthly exam	The concept of theft / theft behavior / reasons for theft / signs of theft / how to steal+First monthly exam	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam

	practical 3	b3: The student applies the steps of the process of transferring the sect from the municipal cell .to the modern cell b6: The student masters the process of transferring the sect from the municipal cell to the modern cell	First monthly exam+ Converting the sect from the older cell to the modern cell	Interactive lecture, brainstorming, dialogue and discussion, field training, practical ercises, field project, ex learning-self	Field project
8	theoretical 1	a3 Determines the signs of swarming in bee : colonies c1: More than one method is used to control : expulsions between sects	Signs of eviction / Reasons for eviction / / Types of eviction Disadvantages of eviction / Ways to prevent eviction / Industrial eviction and methods of dividing bees	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam
	practical 3	b3: The student applies the steps of the process of transferring the sect from the municipal cell .to the modern cell b6: The student masters the process of transferring the sect from the municipal cell to the modern cell	Tire cleaning + a tour of the apiary	Interactive lecture, nstorming, dialogue brai and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
9	theoretical 1	a4: Identifies new ways to strengthen bee : colonies And signs of pesticide poisoning c1: needs to Uses what the beekeeper : strengthen colonies	Reasons for the weakness of sects / ways to strengthen weak sects / pesticide poisoning	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Semester exam 2 , final exam
	practical 3	b3: The student applies steps to fix the basis wax on the wooden frame b6: The student mastered the process of fixing the basis wax on the wooden frame	History of making base wax, installing base wax on tires	Interactive lecture, brainstorming, dialogue field ,and discussion training, practical -exercises, and self learning	Direct drawing and homework
10	theoretical 1	a2: Identifies innovative and new methods in : raising queen bees	Methods of raising queens	Interactive lecture, brainstorming, dialogue -self ,and discussion learning	Semester test 2
	practical 3	b2: The student writes a report on the process of transforming the bee colony from the old hive to the modern hive	Converting the municipal (local) cell into a modern wooden cell (practical a application), writing report on the conversion process and following up on the community's progress in the .following weeks	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
11	theoretical 1	a2: Identifies the most important and useful : honey bee products c1: Uses different bee products In increasing : per capita income	Wax, royal jelly, bee venom, propolis , pollen	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Final test
	practical 3	b1: The student enumerates honey bee ,products and their benefits a4: The student explains why the phenomenon of honey crystallization occurs	Honey bee products, honey and its specifications, honey crystallization, honey adulteration	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
12	theoretical 1	a2: Identify the most important diseases that : dangerous for sects affect bees And the most c1: Uses treatments that are safe for bees and : the environment to treat infected colonies	Identify the most important types of fungal, bacterial and viral diseases that	Interactive lecture, brainstorming, dialogue ,and discussion, self learning	Final test

			affect honey bees / Identify the most important insect and pests that animal affect honey bees		
	practical 3	b1: The student enumerates honey bee products and their benefits b2 :writes a report on the benefits of honey bee products	Wax, royal jelly, bee venom, propolis , pollen	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
13	theoretical 1	a2 Determines the characteristics of : crystallized honey c1: It uses innovative and modern methods to : detect honey adulteration	Honey bee products, honey and its specifications, honey crystallization, honey adulteration	Interactive lecture, brainstorming, dialogue -self ,and discussion learning	Final test
	practical 3	a2: The student gets acquainted with the scale of problems and risks resulting from the causes	Identify the most important types of fungal, bacterial and viral diseases that affect honey bees / Identify the most important insect and animal pests that affect honey bees	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Direct drawing and homework
14	theoretical 1	a1: Uses different nectar sources : c1: Balances bee colonies after being : exposed to pesticide poisoning b2: Identify signs of chemical pesticide : poisoning	Sources of nectar and pollen in Iraq, bee poisoning with chemical pesticides, plants toxic to honeybees, symptoms prevention ,and signs of poisoning	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Short test, final test
	practical 3	a2: The student gets to know the plants rich in .nectar and pollen in the Iraqi environment b1: The student enumerates plants rich in nectar and pollen in the Iraqi environment	Sources of nectar and pollen in Iraq, bee	Interactive lecture, brainstorming, dialogue and discussion, field training, practical -exercises, and self learning	Short practical test 3
15	theoretical 1	c1: Able to prepare scientific research and : studies in his field of specialization +Second month exam	Second month exam	Interactive lecture, brainstorming, dialogue -and discussion, self learning	Short test, final test
	practical 3	a4: The student explains the cause of bees death in front of the cell due to pesticide .poisoning b3: The student adopts awareness of workers in the agricultural sector about the danger of the use of chemical pesticides against honey bees	poisoning with esticides, chemical p plants toxic to honeybees, symptoms and signs, prevention of poisoning+Second month exam	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, field project, learning-self	Field project

### 1. evaluation Course

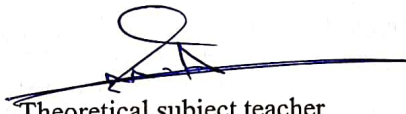
T	Calendar methods	(Calendar date (week	Class	Relative % weight
1	Short test(1)Quiz	the sixth week	2	2
2	Short test(2)Quiz	The fourteenth week	2	2
3	Semester test (1)	The seventh week	10	10
4	Semester test (2)	The eleventh week	10	10
5	Final theoretical test	Final semester exams	40	40
6	Report and discuss	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%

## 2. Learning and teaching resources

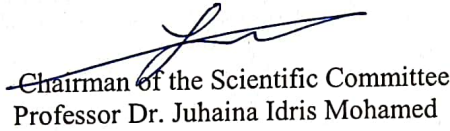
(Required textbooks (methodology, if any)	Naji-Louay Karim Al .The book on beekeeping and silkworms / written by
(Main references (sources	- The book on beekeeping and silkworms / written by Dr. Louay Naji-Karim Al
Recommended supporting books and references (scientific journals, (...reports	The bees of the world /Charles D. Michener
references, Internet sites Electronic	<a href="https://www.google.com/search?q=%D9%83%D8%AA%D8%A7+%D8%AA%D8%B1%D8%A8%D9%8A%D8%A9+%D8%A7%D9%84%D9%86%D8%AD%D9%84&amp;aq=chrome..657j0i22i30i2j0i15i22i30i2.6551j0j15&amp;sourceid=chrome&amp;ie=UT8">https://www.google.com/search?q=%D9%83%D8%AA%D8%A7+%D8%AA%D8%B1%D8%A8%D9%8A%D8%A9+%D8%A7%D9%84%D9%86%D8%AD%D9%84&amp;aq=chrome..657j0i22i30i2j0i15i22i30i2.6551j0j15&amp;sourceid=chrome&amp;ie=UT8</a>



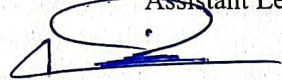
Theoretical subject teacher  
Assistant Professor Dr. Mohammed Yousuf Sayed Ghani



Practical subject teacher  
Assistant Lecturer. Ahmed Thamer



Chairman of the Scientific Committee  
Professor Dr. Juhaina Idris Mohamed



Head the Plant Protection Department  
Assistant Professor Dr Firas Kazem Daoud Al-Jubouri

