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**Department of Plant protection.**

**College of Agriculture.**

**University of Salahaddin**

**Subject: General Entomology**

**Course Book –  (2nd stage )**

**Lecturer's name : Msc. Mohammed Hassan Sallow**

**Lecturer's name : Msc. Dilzar Hamad Mawlud**

**Academic Year:  2022/2023**

**Course Book**

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| **1. Course name** | | | **General Entomology** | |
| **2. Lecturer in charge** | | | **Mohammed Hassan Sallow**  **Dilzar Hamad Mawlud** | |
| **3. Department/ College** | | | **Plant protection Dep. \ college of Agriculture** | |
| **4. Contact** | | | **e-mail:mohamedsallow@su.edu.krd**  **Tel: (07724559053 &; 07508189336)**  **e.mail:** [**dilzar.mawlud@su.edu.krd**](mailto:dilzar.mawlud@su.edu.krd)  **Tel: (07504752898)** | |
| **5. Time (in hours) per week** | | | **Theory: 2**  **Practical: 3** | |
| **6. Office hours** | | | **existent during week days** | |
| **7. Course code** | | |  | |
| **8. Teacher's academic profile** | | | **A graduate of the University of Mosul \ college of Agriculture and Forestry \ Plant Protection Department in 1980.**  **Master in insects (beekeeping) 1985 .I am worked in agricultural research station in Mosul 1987 - 1993 . And as a lecturer in 1997 at Dohuk University College of Agriculture. Since 2000, and so far I am do as lecturer in some subjects in insects & beekeeping in plant protection Dep. college of agriculture \ university of salahaddin.. as well as i am do lecture some subject on beekeeping which organized by the FAO organization for Food and agriculture. for kurdistan beekeeper . And I completion of some research. As well as participated in some scientific conferences such as the second Festival of honey bees in Dohuk beekeeper Association from 2-4 \ 10 \ 2012 and also participated in the activities of the Third Conference of Syrian beekeeper, Damascus University \ college of Agriculture from 13-14 \ 12 \ 2010**  **As well as the activities of the First Scientific Conference of Plant Protection \college of Agriculture and Forestry \ Mosul University 22-24 \ 11 \ 2011. As well as the second scientific conference of the University of Karbala \college of agriculture.**  **My Name is Dilzar H. Mawlud, I have BSc in Agriculture plant protection (Salahaddin Uni. 2008), Msc. in Economic Entomology (Salahaddin Uni. 2015). I'm an assistant lecturer of Plant protection Dept. Agriculture college.** | |
| **9. Keywords** | | | **Plant Protection, General Entomology, Insects** | |
| **10. Course overview:**  **Insects are the most diverse and abundant of all groups of arthropods. There are more species of insects than species of all other classes of animals combined. It's necessary for Entomologist students have information about such a huge group of insects.**  **Introduction to plant protection includes two main topics; Entomology and Pathology. The current course will focus on the General Entomology, Since the 1st class students have no background about the Entomology, so this course will inform the students about the meaning of Entomology and kinds of Entomology, the relationship between insects, plants, animals and human.**  **It's very important for students to know the structure of insects; Head, thorax and abdomen.**  **Students will be familiar with the structure of insects mouthpart, modifications of mouthparts, also the structure of antenna, wings and legs and their modifications.**  **These information will support the knowledge of students about the related subjects, for example; how insects feeding, how causing injury to plants, animals and Human and furthermore by getting information about mouthparts modifications, these information will increase their knowledge about the control of insects.**  **By the end of this course the student will be familiar with the structure of insects and getting good background about General Entomology.** | | | | |
| **11. Course objective:**  **The current course aims to:**  **1-Students learn how to recognize insects depending on the general structure.**  **2-Students will have knowledge about the advantage and disadvantage of insects to human and their role in the environment.**  **3-Student will be familiar with the structure of insects and the modification of their appendages.**  **4-Studying the development and metamorphosis of insects with general information about their behavior.** | | | | |
| **12. Student's obligation**  **Not all students on one level, there is a vast difference between the students in terms of commitment and attention within the lecture and in general, the girls commitment and attention more than males, but as presence to lecture all students presence fear from their punctuation constraint and not out of love for science . But The student must have an important role:**  **1-The students must contribute in the scientific discussions in the class or teaching hall.**  **2-The students must know the importance of quizzes, homework, reports and exams.**  **It** is necessary to contribute the student in presenting a scientific subject . | | | | |
| **13. Forms of teaching**  note book are used also PowerPoint and data chew as well as the white board | | | | |
| **14. Assessment scheme**  **The course degree was divided as follow %40 of monthly exam , %25 for theoretical part 15 for practical part in theoretical part 10 marks for the first exam , 10 marks for second exam , 5 marks for daily quiz and preparing reports**  **Final exam takes %60, 40 marks for theory and 20 for practical part** | | | | |
| **15. Student learning outcome:**  **Course outcomes should clearly relate to topics, assignments, and exams that are covered in the present course. Course outcomes should be clear, measurable, use verbs (e.g., identify, explain,..).** | | | | |
| **16. Course Reading List and References‌:**  **1- Arnett, Ross H. and Richard L. Jacques, Jr.. 1981. Guide to Insects, 511 pp. New York, Simon and Schuster**  **2 -Borror, D.J., C.A. Triplehorn, and N. F. Johnson. 1989. An Introduction to the Study of Insects, 875 pp. Philadelphia, Sanders College Publishing.**  **3- Comstock, J. H. 1949 (9th ed.). An Introduction to Entomology. Ithaca, N. Y.: Comstock, 1064 pp. ; illus.**  **4 -R.F. Chapman (1998). The insect structure and function.**  **Cambridge university press. 770pp.**  **5 -Gibb, T. J. and C. Y. Oseto. 2006. Arthropod Collection and Identification—Laboratory and Field Techniques. 311 pp. New York, Elsevier/Academic Press**  **6 -O.W. Richards & R.G.Davis (1964). Ageneral textbook of Entomology . Tanner Ltd. Rome Batler and & London. 886pp.**  **7 -R.E. Snodgrass(1953). Principles of insect morphology . Magraw hill book company ,Newyork and London**    **INTERNET SITES**  **http://www.royalsaskmuseum.ca/research/collections/life\_scienc**  **es/neat\_stuff\_entomology.shtml**  **http ://www.uap.ualberta.ca/UAP.asp?LID=41&bookID=261**  **http://www.bijlmakers.com/entomology/bodypart.htm** | | | | |
| **17. The Topics: Theory** | | | | **Lecturer's name** |
| **Week** | | **subjects** | | **Lecturer's name: Mohammed H. Sallow**  **ex: (2 hrs)** |
| **1st** | **\* The Phylum Arthropoda.; Characteristics of**  **Phylum Arthropoda .**  **\* Entomology: Class : insecta (Hexapoda):-** | | |
| **2nd~**  **3rd~**  **5th~**  **6th~**  **7th~ &8** | **General Characteristics of insects.**  **pathology . and so on**  **The body wall of insects (Integument or**  **exoskeleton)**  **\* Moulting or Ecdyson. \*Metamorphosis**  **\* The structure of insect’s body:-**  **A-The head structure. \*The Antenna ;**  **Modification of Antenna.**  **\*Mouth parts and its modification.**  **The thorax of insects.** | | |
| **9th~&10** | **\*The legs and its modification .**  **\*The wings and its modification.**  **\*THE ABDOMEN ;**  **Classifying of abdominal segments**  **1-Non-Reproductive appendages**  **2-Reproductive appendages in female;**  **Reproductive appendages in male**: | | |
| **18. Practical Topics (If there is any)** | | | | **Lecturer's name** |
| Weeks | | | Subjects |
| 1 | | | Kingdoms of the World  Kingdom: Animal (and its phyla , classes and orders) | **Lecturer's name**  **Mr. Dilzar Hamad Mawlud**  **ex: (3 hrs)** |
| 2 | | | Collecting and Preserving Insects:  (Methods, equipment and Requirements. |
| 3-4 | | | Insect Morphology : Body Regions :  The head and its appendages  --The Insects mouth Parts.  -Modifications of mouth parts. |
| 5 | | | - Insects antennae  - Modifications of antenna. |
| 6 | | | -The Insects Legs Morphology.  -The Modifications of The Legs. |
| 7 | | | The Thorax: its appendages  -The insect wings and its Modifications. |
| 8 | | | The Insects Abdomen: Morphology  The appendages of Insects abdomen.  -reproductive appendages and non-reproductive appendages. |
| 9-10 | | | -The Insects Development (Metamorphosis)  -Types of insect Larvae  -Types of Insect Pupae |
| **There are three main and important skills the students should learn they are power point , excel and world that led them dealing with computer and internet.** | | | |
| **19. Examinations:**  ***1- Define the following statements.***  ***2 -Reply with true or false then corrected the error wherever found***  ***3 -Draw With highlight the most important parts: a- insects integument (body wall)***  ***b- front view of insect head . c-insect~s leg. Etc….***  ***4- Enumerate the main characteristics of the : Phylum Arthropoda ,,,,, Class insecta ….etc.***  ***5 -What is the main function of ; a- cuticle . b- Antenna . …….etc.***  ***6- Fill in the following blanks with a suitable terms . a-……..b-……….c-……….***  ***7- Name type of wings ,, legs ,,, mouth parts of these insects; a- Worker honey bee, b- Butterfly . c-cockroach,,,etc…..***  ***8 - Why are insects so successful?***  ***9 - Are insects (Beneficial) to human ? explain it.***  ***10- Are insects Harmful or Injurious to human? explain it.***  ***11-Compare between larva and pupa.*** | | | | |
| **20. Extra notes:** | | | | |
| **21. Peer review**  .‌‌ | | | | |