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**Department of Plant protection**

**College of Agriculture**

**University of Salahaddin**

**Subject: Practical Insect Taxonomy**

**Course Book (Year 2)**

**Lecturer's name Hozan Qadir Hamamurad, MSc**

**Academic Year: 2017/2018**

**Course Book**

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| **1. Course name** | Insect Taxonomy  |
| **2. Lecturer in charge** | Hozan Qadir Hamamurad |
| **3. Department/ College** | Plant protection / Agriculture  |
| **4. Contact** | e-mail:hozan.hamamurad@su.edu.krdTel: (optional) 0750 4824927 |
| **5. Time (in hours) per week**  | For example Theory: 2 Practical: 9 |
| **6. Office hours** | Monday to Wednesday  |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | Lecturer name: Hozan Qadir Hamamurad , born 1985 , BSc degree in plant protection 2004-2008, 4th -10 had started working as an academic staff (teaching assistant) in 16-7-2009 in the college of Agriculture / plant protection department Salahaddin university, taking post graduate courses for 9 month in college of agriculture plant protection department in Salahaddin university getting MSc. Degree In Entomomlogy (plant protection) working as an assistant lecture also member in agriculture engineering syndicate in Hawler, taking a course on teaching method in 2015,The same University ( Salahaddin) web site Giving a pre graduating course of insect taxonomy to students in 2nd class Working in seven researches1. Description of three species of *Clytra* Laicharting,1781 (Coleoptera: Chrysomelidae) from Kurdistan Region-Iraq.
2. New species of soft-winged flower beetles, *Malachius*, 1775 (Coleoptera: Myrlidae) from Kurdistan Region-Iraq.
3. New record of checkered beetle, *Trichodes ephippiger* Chevrolate, 1874 (Coleoptera: Cleridae) from Iraq.
4. A new record of chafer beetle, *Oxythyrea cinctella* Mulsant,1842 (Coleoptera, Scarabaeidae) from Erbil- Kurdistan region- Iraq.
5. New record of Scarab beetles, *Protaetia* sp. Burmeister, 1842 (Coleoptera, Scarabaeidae) from Erbil Kurdistan region- Iraq.
6. A New record of sap feeding- beetle, *Nitidula* *flavomaculata* Rossi,1790. (Nitidulidae: Coleoptera) in some localites of Kurdistan region.
7. A New record of Elm Leaf Beetles, *Xanthogaleruca luteola* (Muller,1766) (Coleoptera : Chrysomelidae ) from Iraq.
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| **9. Keywords** | Morphology , character , external internal component , anatomy , characters and survey insects. |
| **10. Course overview:** A remote delivery (distance education) course that brings together basic anatomy and physiology of insects and relates this to behaviour. The main body systems will be examined sequentially and aspects of biology relevant to currently active or promising research areas featured of insect taxonomy. The course features aspects of physiology and anatomy that are relevant to the status of insects as pests and beneficial organisms and as developmental model organisms. Class discussions of relevant topics are encouraged and assessed. Recorded mini-lectures accompany web-based resources. A remote delivery (distance education) course that brings together basic anatomy and physiology of insects and relates this to behaviour. The main body systems will be examined sequentially and aspects of biology relevant to currently active or promising research areas featured of insect structure. The course features aspects of physiology and anatomy that are relevant to the status of insects as pests and beneficial organisms and as developmental model organisms. Class discussions of relevant topics are encouraged and assessed. Recorded mini-lectures accompany web-based resources for insect morphology, and external anatomy. It is expected that all students would be present in class for lectures and also participate in all practical activities. Attendance records will be kept and used to determine each person’s qualification to sit for final examination according to the University rules. Any unavoidable cause(s) of absence must be communicated with or presented to the instructor as soon as possible, indicating the reason for the absence. |
| **11. Course objective**- our objective in this course giving information on insect taxonomy.- detail information of insect taxonomy.To provide students with an understanding of the comparative morphology of insect organ systems. To show students how the morphology of a structure is related to its function. The course will examine theory and practice of insects taxonomy and exploreeconomic and ecological considerations in decision making and programs of control including morphology of insects, surveying and sampling methodology for informed decision-making, and the effect of market values and input costs on economic thresholds. Course objectives include: an overview and appreciation of insect diversity in Kurdistan region and understand basics of insect biology and taxonomy Develop effective decision-making skills in insect structure with respect to economic and environmental considerations Understand the roles of insects in crop production, the destructive nature of pest insects in relationship to plants, and the importance of beneficial insects Appreciate the different viewpoints stakeholders of crop production have and understand the ethical, economic, and environmental considerations when making decisions in insect pest-management. |
| **12. Student's obligation**Student Attendance in lecture, collecting sample, hand notes, preparing reports about some important course subjects, quizzes. |
| **13. Forms of teaching**Teaching using Power point, data show, white board, practices, video. |
| **14. Assessment scheme** practical part has 15 marks 10 marks for examination 3 marks for quizzes 1 for sample 1 for report. |
| **15. Student learning outcome:** Due to our given topic to students they will learn how to describe external , internal and classifying insects and recognized all body parts. This course is a general introduction to entomology with an emphasis on insect diversity. We will provide an evolutionary perspective on the basic taxonomy, habits, morphology, habitats, and life history strategies of insects. Students will be expected to attain some fluency in the language of entomology, showing an understanding of basic insect structure and the overall diversity of the Insect. They will learn to extrapolate from general patterns of life history and behaviour to specific predictions about the biology of most of the animals encountered in terrestrial and freshwater environments. The laboratories will work synergistically with the lectures to reinforce recognition of large and important taxa (orders, families) and to identify other taxa using dichotomous keys. In both the lecture and the laboratory the emphasis will be on the attainment of practical skills needed by teachers, naturalists, and field biologists in a variety of related disciplines. This handbook provide information on exactly what excepted learning outcomes and what methods can be used to assess them. |
| **16. Course Reading List and References‌:****▪**Snodgrass, R. E. (December 1993). Principles of Insect Morphology. Cornell Univ Press. [*ISBN*](https://en.wikipedia.org/wiki/International_Standard_Book_Number) [*0-8014-8125-2*](https://en.wikipedia.org/wiki/Special%3ABookSources/0-8014-8125-2).**▪**Gordh, G. & Headrick, D. (2001).  A Dictionary of Entomology. CABI Publishing, New York.**▪** [Copyright © 1997-2015 Amateur Entomologists' Society](http://www.amentsoc.org/help/copyright.html)- John, R.M.(2016). General Entomology. Disclaimer, 1-3p.- Hoell, H.V.; Doyen, J.T. and Purcell, A.H. (1998). Introduction to insect Biology and Diversity, Ox. Uni., 2nd ed. 320pp.**-**www.earthlife.net/search.html  |
| **17. The Topics:** | **Lecturer's name** |
| In this course we will given an overview of insect taxonomy Lecture1 study the classification of living things. Lecture 2 Study the insect collection and preserving.Lecture 3 Definitions such as taxonomy, phylum, and each other...Lecture 4 study the principles of the classification of insect orders.Lecture 5 study the order orthoptera and scientific classification and characteristics.Lecture 6 study the pterygota orders. Lecture 7 1st practical examination.Lecture 8 study the order Hemiptera, scientific classification and other orders.Lecture 9 order Pthiroptera and study the characteristics.Lecture 10 study the order Coleoptera.Lecture 11 study the order Hymenoptera (Wasps, Ants and Bees).Lecture 12 order Lepidoptera.Lecture 13 2nd examination.Lecture 14 study the order Diptera.Lecture 15 how to learn key of insect orders.Lecture 16 visit to the field to survey insects.Each term should include not less than 16 weeks  | Hozan Qadir HamamuradEx: (9 hrs)Ex: 10/2/2018 |
| **18. Practical Topics (If there is any)** |  |
|  | **Lecturer's name****ex: (3-4 hrs)****ex: 10/2/2018** |
| **19. Examinations:****Question sample:**1. Scientific classified of this order.
2. Write the parts that point.
3. Write the function of this parts.
4. Defined between this suborder.
5. What is the parts and give the examples.
6. Fell the blank.

**2. True or false type of exams:****3. Multiple choices:** |
| **20. Extra notes:** |
| **21. Peer reviewپێداچوونه‌وه‌ی هاوه‌ڵ**  |