



Department of Biology

College of Science

International University of Erbil

Subject: Invertebrates

Course Book – (Year: 2)

Lecturer's name: Prof. Dr. Luay Abdul-Qader Ali

Academic Year: 2022/2023

Course Book

1. Course name	Invertebrates
2. Lecturer in charge	Dr. Luay Abdul-Qader Ali
3. Department/ College	Biology Dept./ College of Science
4. Contact	e-mail: luay.ali@su.edu.krd
5. Time (in hours) per week	Theory : 4hrs & Practical : 4hrs
6. Office hours	
7. Course code	
8. Teacher's academic profile	B.Sc. in Biology 1995 MSC. In Ecology 2002 Ph.D. in Zoology-Invertebrates 2007
9. Keywords	
10. Course overview:	
<p>The invertebrates included those animals which are without backbone as opposed to vertebrates in which a series of vertebrae constitute a backbone, but this division of the animal kingdom into invertebrates and vertebrates is largely a matter of convenience. The invertebrates constitute about 90% of the known animals which number over a million. Vast and heterogeneous groups have been placed in the invertebrates. There is not even one positive character which is common to all invertebrates, and the differences between the groups are very large, each group of invertebrates has certain structural peculiarities, a special terminology, and a distinct classification. However, the life of invertebrates is as fascinating, revealing and complicated a subject as that of vertebrates. Without a thorough and careful study of invertebrates it is hardly possible to peep into the secrets of life of animals on the whole.</p>	
11. Course objective:	
<ul style="list-style-type: none"> • To know what are invertebrates • To develop critical thinking skills by reviewing journal articles • To understanding the habit and habitat, structure, organization, respiration, excretion and reproduction in invertebrates. 	
12. Student's obligation	
<p>Students are expected to attend all classes. The official college attendance policy is followed. Attendance in each class is counted from the first day the student is eligible to attend the class as given on the student's assessment sheet registration card or student change notice. Student may obtain an excuse for the emergency absence from the dean of students upon presentation of satisfactory documentation.</p>	
13. Forms of teaching	
<ul style="list-style-type: none"> • Using of power point presentation and data show for head titles, introduction of 	

<p>subjects, definitions, figures, systematics position of invertebrates organisms.</p> <ul style="list-style-type: none"> • Using white board • Classroom discussions about the lecture subjects and students questions. 	
<p>14. Assessment scheme</p> <ul style="list-style-type: none"> • The students are required to do two closed book exams during the academic year. • Weekly quiz. • Attendance equal to 3% • Comprehensive final examination equal to 60% (40% theoretical + 20% practical). 	
<p>15. Student learning outcome: At the completion of this subject, students are expected to be able to :</p> <ul style="list-style-type: none"> • Understand and describe the invertebrates organism • Understand the habit and habitat of invertebrates and its structure , reparation, and methods of reproductions. • Think critically in terms of their learning and research. • Evaluation critically the published literature. 	
<p>16. Course Reading List and References:</p> <ul style="list-style-type: none"> ▪ “Invertebrate zoology”, E. L. Jordan and P. S. Verma. ▪ “Animal life in fresh water-A guide to fresh water invertebrates”, H. Mellanby. 	
17. The Topics:	Lecturer's name
<p>Week 1: Definition of invertebrates, History, present invertebrates phyla, general characteristics of invertebrates.</p>	2 hours
<p>Week 2: Protozoa: <i>Amoeba</i> Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week 3: Protozoa: <i>Trypanosoma</i> Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week 4: Protozoa: <i>Plasmodium</i></p>	2 hours

feeding (nutrition), respiration, excretion and reproduction.	
<p>Week13: Nematoda</p> <p>Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week14: Annelida: Earthworm (Oligocheata)</p> <p>Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week15: Annelida: Hirudinea</p> <p>Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week16: Arthropoda: Crustacea Crustacea: Cladocera (Water-Fleas)</p> <p>Habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week17: Crustacea: Copepoda</p> <p>Habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week18: Crustacea: Ostracoda</p> <p>Habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	2 hours
<p>Week19: Chirocephalus sp. (Fairy Shrimps)</p> <p>Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction</p>	2 hours
<p>Week20: Mollusca: Gastropoda</p> <p>Systematic position, Habit and habitat, structure, locomotion,</p>	2 hours

<p>feeding (nutrition), respiration, excretion and reproduction.</p> <p>Week 21: Mollusca: Unio (Bivalve) Systematic position, Habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p> <p>Week 22: Annelida: Nereis (Polychaeta) Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p> <p>Week 23: Echinodermata: Asterias Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p> <p>Week 24: Protozoa: Vorticella Systematic position, habit and habitat, structure, locomotion, feeding (nutrition), respiration, excretion and reproduction.</p>	<p>2 hours</p>
<p>19. Examinations:</p> <ol style="list-style-type: none"> 1. <i>Full the following blanks</i> 2. <i>True or false</i> 3. <i>Multiple choices</i> 4. <i>Match the tow following columns</i> 5. <i>Draw with label</i> 	
<p>20. Extra notes:</p>	
<p>21. Peer review</p>	