



Department of Biology

College of Science

Salahaddin University -Hawler

Subject: Zoology (BioMedical)

Course Book – (2nd Semester)

Lecturer's name (Theory) Dr. Sarkaut H.Muhammed

Lecturer's name (Pract.) Miss. Shna Ibrahim

Academic Year: 2022/2023

Course Book

1. Course name	Zoology
2. Lecturer in charge	Dr. Sarkaut Hussein Muhammed
3. Department/ College	Biology/Science
4. Contact	e-mail: sarkaut.muhammed@su.edu.krd Tel: (optional)
5. Time (in hours) per week	2hr./ per week
6. Office hours	To be Return to the schedule on the office door
7. Course code	Sbio 105
8. Teacher's academic profile	<p>* I graduate from Salahaddin University in 1998 (Ranked 7th in collage) worked as teacher in High school for one year. In 1995 I finished my M.Sc degree and start as Assistant Lecturer Teaching Practical Entomology, Practical Invertebrate Biology, Practical Zoology, Practical Medical Entomology, and Computer science (both Theory and practical).</p> <p>* For 3 years I worked as a Member of the Examination Committee for College of Science.</p> <p>* In 1998 I teach Histology (both theory and practical) for the 2nd class students in Shaqlawa Technical Institute, Shaqlawa, Iraq.</p> <p>* In 1999 I teach the computer programming in Economic and administration college for 2nd stage.</p> <p>* In 2000 I teach Invertebrate (theory) for the 2nd class students in Basic education college, University of Salahaddin-Hawler.</p> <p>* In 2009 I get my PhD degree in Economic Entomology and from that time, as a Lecturer, I am in charge in teaching General Entomology theory for 3rd class students for two years, teaching Medical Entomology theory for 3rd class students, Supervising Medical Entomology Practical Laboratory and General Entomology lab.</p> <p>* In 2017 I teach Algae and archeogonate plant Practical Laboratory for 2nd stage in Biology department.</p> <p>* In 2018 I teach one course of Zoology for first stage.</p>
9. Keywords	Invertebrate, Diversity of Animal, Classification, Phylum
10. Course overview:	<ol style="list-style-type: none"> 1. Zoology is a course that will survey the nine major phyla of the kingdom Animalia. 2. Zoology is the study of animal life. 3. Zoologists research everything they think to ask about animals, including their anatomy and interrelationships, their physiology and genetics, and their distributions and habitats. 4. Zoology course will help you to understand the behaviour, structure and evolution of animals. 5. Understand whole animals, populations, and their ecology. 6. Study fundamental concepts from a range of disciplines in the first year before going on to study more specialised zoology topics in your second and final years. 7. The course also providing an introduction to the essential data handling and laboratory skills required for all biological scientists. Also presents current information on the animals that have and continue to life of humans and animals. This course will explore the arthropods of importance

in human health through direct attack and disease transmission. It will include information on their biology, ecology, potential for disease transmission and management. Students will learn to identify the common pests and the principles of epidemiology and pest management.

8. Students will be able to identify the major groups of organisms with an emphasis on animals and be able to classify them within a phylogenetic framework. Students will be able to compare and contrast the characteristics of animals that differentiate them from other forms of life.
9. Students will be able to explain how organisms function at the level of the gene, cell, tissue, organ and organ-system. Drawing upon this knowledge, they will be able to give specific examples of the physiological adaptations, development, reproduction and behaviour of different forms of life.

11. Course objective:

- * The cell
- * The tissue
- * Definition of invertebrate
- * Advantage of invertebrates
- * Disadvantages of invertebrates:
- * Characters used in classification
- * Symmetry (and their types)
- * Coelom (and their types)
- * Classification
- * Major and Minor phyla
- * General characters of phylum Protozoa
- * Classification of phylum Protozoa
- * Locomotion in Protozoa
- * Colony formation in Protozoa
- * Organization of the Protozoa:
- * Life-cycles of the Protozoa:
- * General characters of phylum Metazoa
- * Classification of phylum Metazoa
- * Locomotion in Metazoa
- * Colony formation in Metazoa
- * Organization of the Metazoa
- * Life-cycles of the Metazoa
- * General characters of phylum Porifera
- * Classification of phylum Porifera
- * Canal system in sponges
- * Sponge spicules and gemmules
- * General characters of phylum Platyhelminthes
- * Classification of phylum Platyhelminthes
- * Describe the special cells
- * The role of Platyhelminthes in humans and their domestic animals live
- * How we can prevent the infection.
- * General characters of phylum Annelida
- * Classification of phylum Annelida

- * The benefit of Annelida
- * General characters of phylum Arthropoda
- * Classification of phylum Arthropoda
- * Importance of phylum Arthropoda
- * The rule of predators and parasites in nature
- * General characters of phylum Mollusca
- * Classification of phylum Mollusca
- * The benefit of Mollusca
- * General characters of phylum Echinodermata
- * Classification of phylum Echinodermata
- * Importance of phylum Echinodermata
- * Rule of phylum Echinodermata in environment

12. Student's obligation

Exam policy: Student Should take 2 exams during the course There will be no make-up exams for absences students without medical report.

Classroom polices:

- 1- **Attendance:** You are strongly encouraged to attend class on a regular basis, as participation is important to your understanding of the material. This is your opportunity to ask questions. You are responsible for obtaining any information you miss due to absence.
- 2- **Lateness:** Lateness to class is disruptive.
- 3- **Electronic devices:** All cell phones are to be turned off at the beginning of class and put away during the entire class.
- 4- **Talking:** During class please refrain from side conversations. These can be disruptive to your fellow students and your professor
- 5- **No Disrespectful** to both the professor and to your fellow students.

13. Forms of teaching

Data show (PowerPoint), course book, blackboard

14. Assessment scheme

Component	Date	Percent
Exam1	2023	100 % (convert to out of 10)
Activity	2023	50 % (convert to out of 5)
Total		Exam+activity

15. Student learning outcome:

After completion of this course, you will be able to:

- Define common terms used in Zoology and the history of Zoology.
- Identification and systematics of animals that exist in our area and their importance.
- Identify most of the harmful animals that transmit disease for both humans and animals.
- Understand the evolution, history of phylum

- Learning how drawing and how identify parts of animals in addition learning how writing scientific name for animals.
- Understand about the Non Chordate animals.
- To study the external as well as internal characters of non-chordates.
- Understand the various internal systems like Digestive system, nervous system with the help of charts.
- Understand the functions of Gemmules and spicules.
- Understand the economical importance of Molluscan shells.
- To study and understand the classification of whole phyla includes in Non chordates with the help of charts/models/pictures
- To study the distinguishing characters of non-chordates.
- Understand the economic importance of many popular animals.

16. Course Reading List and References:

- 1- Integrated principals of zoology (*Hickman-Roberts-Larson*)
- 2- **Invertebrate Zoology** (*Hegner & Engemann*)
- 3- The Insects (An Outline of Entomology),
- 4- **Zoology** (*Miller & Harley*)
- 5- **Practical animal biology** (part 2&3) (*A.H. Al-Husaini*)
- 6- Journal of Parasitology

17. The Topics:

Date	Topic
Week 1	An introduction to Zoology, explain the aim of Course book, give name of References, definition of terms
Week 2	Definition of invertebrate, Advantage of invertebrates, Disadvantages of invertebrates, Characters used in classification, Classification, Major and Minor phyla
Week 3	General characters of phylum Protozoa, Classification of phylum Protozoa, Locomotion in Protozoa, Colony formation in Protozoa
Week 4	Organization of the Protozoa, Life-cycles of the Protozoa:
Week 5	General characters of phylum Metazoa, Classification of phylum Metazoa, Locomotion in Metazoa, Colony formation in Metazoa
Week 6	Organization of the Metazoa, Life-cycles of the Metazoa
Week 7	First Examination
Week 8	General characters of phylum Porifera, Classification of phylum Porifera, Canal system in sponges, Sponge spicules and gemmules

Week 9	General characters of phylum Platyhelminthes, Classification of phylum Platyhelminthes, Describe the special cells, The rule of Platyhelminthes in humans and their domestic animals live, How we can prevent the infection.
Week 10	General characters of phylum Annelida, Classification of phylum Annelida, The benefit of Annelida.
Week 11	General characters of phylum Arthropoda, Classification of phylum Arthropoda, Importance of phylum Arthropoda
Week 12	The rule of predators and parasites in nature
Week 13	Second Examination
Week 14	General characters of phylum Mollusca, Classification of phylum Mollusca, The benefit of Mollusca
Week 15	General characters of phylum Echinodermata, Classification of phylum Echinodermata
Week 16	Importance of phylum Echinodermata, Rule of phylum Echinodermata in environment

18. Practical Topics (If there is any)

19. Examinations:

1. Compositional: In this type of exam the questions usually starts with Explain how, What are the reasons for...?, Why...?, write down...? With their typical answers

- * Define the followings: radial asymmetry, acoelom, predator, cilia, flagella
- * Write down the canal system in Sponges?
- * Write the harmful of Platyhelminthes.

2. True or false type of exams:

In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence.

- 1- Porifera means animals eat plants.
- 2- Leucon type is the complex type of sponges

3. fill blanks with suitable word:

- 1- In *Planaria* digestive systems include a -----, a -----, and -----.
- 2- Adults of *Clonorchis sinensis* life in the ----- of humans.
- 3- The Scolex of tapeworm has ----- and ----- used to attach to its host.
- 4- Sessile form in Cnidaria known as -----.
- 5- Members of superclass Mastigophora use ----- for locomotion.

20. Extra notes:

21. Peer review

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.

(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).