



Department of Animal Resources

College of Agricultural Engineering

Sciences

University of Salahaddin

Subject: Practical animal physiology

Course Book – Third stage

Lecturer's name : Delman Deler Maulod

Academic Year: 2023/2024

Course Book

Course name	Animal physiology (Practical)
Lecturer in charge	Delman D. Maulod
Department/ College	Animal Resources / Agriculture
Contact	<u>Delman.maulod@su.edu.krd</u> Tel: (optional) 07704220770
Time (in hours) per week	For example Theory: Practical : 6
Office hours	12 hours
Course code	
Teacher's academic profile	<p>Delman D. Maulod</p> <ul style="list-style-type: none"> - B.Sc. 2009 from Salahaddin University-Erbil, Kurdistan Region, Iraq, Agriculture College, Animal Resources Department. - M.Sc. 2015 from Salahaddin University-Erbil Kurdistan Region, Iraq under avian physiology area of specialization. - Since 2009, I'm an academic staff of the University of Salahaddin, Faculty of Agriculture to date.
Keywords	

Course objective:

The teaching mission for the undergraduate Physiology is to provide a foundation of physiological principles and their application in real-life situations. By the completion of the program, undergraduate students are expected to:

1. Demonstrate knowledge of organ systems function.
2. Demonstrate knowledge of cellular function.
3. Demonstrate the ability to integrate physiology from the cellular and molecular level to the organ system and organismic level of organization.
4. Effectively read, evaluate and communicate scientific information.
5. Demonstrate knowledge of current topics in physiology.
6. Conduct and/or evaluate laboratory experiments in physiology.

Recognize and explain the principle of homeostasis and the use of feedback loops to control physiological systems in the animal body.

Forms of teaching:

- 1- By experiment. Analysis of animal blood (CBC), using laboratory equipment such as microscopes, ESR rack, Haemocytometer....
- 2- Data show. Explaining the procedure and the aim of study by photos and videos.
- 3- Bringing live samples of body system and organs

Assessment scheme:

We will start most class periods with a short quiz. The quizzes could cover any information presented before that date, but will usually cover information presented in the most recent lectures. The quizzes will be given during the first 5 to 7 minutes of the class period. Exams will consist of a variety of questions, including multiple choices, true/false, matching, and reasons for, occasionally short answer.

Note: Number of exams and lectures for each exam did not specify. Each student attends a report within the lecture program at the end of the lecture.

Course programs:

1: Introducing animal cells, The Structure and function of Cytoplasm organelles.

2: Blood: including: Functions of the blood, Composition of blood, The major types of blood cells and Anticoagulants types

3: Collection of Blood samples from animals in the field, plasma and serum paration,

4:Osmosis: Kinds of membranes, Preparation of different solutions (hypertonic, hypotonic and isotonic solutions) then application of osmotic fragility experiment.

5: Blood CBC: Red blood cell count. White blood cell count. Differential count procedure.

6: Packet Cell Volume (PCV)

7:Blood groups (ABO system and Rh system)

8: Erythrocytes Sedimentation Rates (ESR)

9: Hemoglobin Determination (HB).

10: Bleeding and clotting Times (3 experiments).

11: Respiratory system: Lung volumes and respiration abnormality.

12: Digestive system: Parts of digestive tracts in ruminant and study their functions

13: Circulatory system: Cardiac cycle and blood pressure.

14: Thermoregulation of animal body: Measuring of body Temp. in animals

Course Reading List and References:

- 1- Animal physiology. 1985. David Randall
- 2- Essentials of Physiology: Nicholas Sperelakis and Robert O.Banks (1996).
- 3- Clinical physiology: An Examination Primer. Ashis Banerjee (2005).
- 4- Experimental and Applied Physiology. Richard G. Pflanzler (2007).
- 5- Medical physiology. (2006). Guyton and Hall.
- 6- Review of Medical Physiology. (2003). William F. Ganong.
- 7- Internet (PDF)

Examinations:

Sample of exams:

Q\ Explain the following sentence: For example\ Plasma membrane is semi permeable membrane.

Answer Movement of water across a semi-permeable membrane from an area of high [water potential](#) to an area of low water potential.

Q\ define this following term:

For example

Osmosis:

Answer The movement of water molecules from an area of high concentration to an area of low concentration.

Q\ write the function of these following items:

For example

Blood plasma:

Answer Plasma transports materials needed by cells and materials that must be removed from cells:

- Various ions (Na^+ , Ca^{2+} , HCO_3^- , etc.)
- glucose and traces of other sugars
- amino acids
- other organic acids
- cholesterol and other lipids
- hormones
- urea and other wastes

What is the principle of HB estimation?

Answer: Principle: this method based on conversion of hemoglobin to acid hematin, which is brown in color.

Fill the blanks with correct answer:

There two methods blood clotting measurement

..... And.....

(test tube method and capillary method)

Answer by true or false and correct the false words:

If RBCs number increase this lead to decrease Hb and PCV. (False)

