Zoology 1; Code: 131/C

A- Basic Information

Programme(s) on which the course is given:	Bachelor of Pharmacy
Department responsible for offering the course:	Department of Pharmacology and Toxicology
Department responsible for teaching the course:	Department of Zoology, Faculty of Science
Academic year:	Prepharmacy- First Semester
Course title and code:	Zoology 1-131/C
Contact hours:	Lecture: 2, Practical: 2, Total: 4
Course Coordinator:	Professor Ali M. Abdel Aal

B- Professional Information

The course aim and intended learning outcomes are based on that mentioned in the programme specifications, with more course-related specific details.

1. Overall aims of course

Upon successful completion of this course, the students must be able to demonstrate sufficient knowledge of fundamental concepts in vertebrate body structure and functions and demonstrate the ability to integrate this knowledge in understanding how living organisms perform functions necessary to maintain life. The student must be capable of dissecting and exposing organ systems and identifying histological preparations from these organs accurately.

2. Intended Learning Outcomes of Course (ILOs):

By the end of this course, the student must be able to:

a - Knowledge and Understanding

a1- Describe the structure of animal cell, define the functions of its organelles, and describe the stages in cell cycle and types of cell division.

a2 - Illustrate the structural characteristics of the 4 major tissue types.

a3 - Explain the stages in embryonic development in vertebrates

a4- Illustrate the functional organization and functions of the vertebrates nervous, endocrine, respiratory, digestive, circulatory and urinary systems.

a5- Enumerate the main types of nutrients and steps in their digestion, absorption and metabolism.

b- Intellectual skills

b1- Integrate structural and physiological concepts in explaining the characteristics of life common to all living organisms.

b2 - Apply the information gained from the student of the tissues to identify unknown histological preparations from different vertebrate animals that are not included in the formal teaching of this course.

c- Practical skills

c1 - Use appropriate dissecting tools to expose and illustrate vertebrate organs.

c2 - Use the optical microscope to examine the stained histological preparations.

d- General and Transferable skills

d1 - Make labeled drawings of body organs and tissues to appropriate scale and proportions in accordance with scientific guidelines.

2- Course Contents

Topics	Lecture hours	Practical hours
I. Physiology:		
- Nutrition (types of nutrients, vitamins, minerals)	1	-
- Muscular system	-	2
- Digestive system (digestion and absorption)	1	2
- Metabolism (free energy, biological oxidation, carbohydrate, fats and protein metabolism)	2	-
- Circulatory system: - cardiovascular system (structure of human heart, cardiac cycle, heart sound) - blood vessels - blood composition, functions, coagulation	2	2
- Lymphatic system		
- Respiratory system: mechanism of respiration, gas exchange, transport of oxygen and CO_2	1	2
- Excretory system: Structure of the urinary system, structure and function of the nephron, urine formation	2	2
- Skeletal System	-	2
- Nervous system (structure of neurons) Electrical charge across the plasma membrane – synaptic transmission and reflex arc.	1.5	2
- Reproductive system Endocrine system: chemical classification and mechanism of action Pituitary, pineal, thyroid, parathyroid, thymus, pancreas, adrenal and gonads	2.5	-
II. Cytology - Prokaryotic & Eukaryotic cells - Cell membrane – transport across membrane	1	-
- cytoplasm and cytoplasmic organelles	1	-
- Nucleus, nucleolus, cell cycle, cell division (mitosis and meiosis)	1	1
III. Embryology:		
- Gametogenesis, fertilization, cleavage, gastrulation and early development of embryo	2	1
IV. Histology:		
- Epithelial, connective, muscular and nervous tissues	2	2
- Histology of organs	-	2
V. Molecular Biology and Genetics		
- The genetic material, nucleic acid structure, chromosomes and sex determination, sex-linked genes.	2	-
- Genetic code, protein synthesis and control of gene action	2	-
- Mutation – chromosomal aberrations and their consequences on human health	2	-
- Recombinant DNA – Genetic engineering	2	-
- Revision histology	-	4

4. Teaching and learning methods

- Lectures: using data show and computer
- Practical session: including anatomy of vertebrate animal (toad), histological examination of microscopic preparations, photos by E.M. of cell organelles, models of embryonic stages.

5. Student assessment methods:

- -Written exam **to assess** knowledge and understanding detailed in item 2a &2b
- - Practical exam **to assess** practical skills detailed in item 2c &2d

6. Assessment schedule:

- Practical exam. Week 13
- Final written exam Week 15

7. Weighting of assessment:

- Practical exam. 40 marks
- Final written exam 110 marks
- Total 150 marks

8. List of references:

- Course notes and handouts prepared by the course instructors
- Essential Books (Text Books):
  - Practical Animal Biology, part 1, Al-Hussaini and Demian, Dar Al-Maaref Publishers. Cairo Egypt.
- Recommended Books:
  - Biology, S. Mader, W. M. C. Brown Publishers, London, N. Y.

9. Facilities required for teaching and learning:

- Lecture halls equipped with Video projectors
- Laboratory large enough for the huge number of students with better infrastructure.
- Instruments and reagents to perform physiological experiments.
- Computers with capabilities to connect to web sites on line.
- Microscopes with large screens.

Course coordinator:
Prof. Ali M. Abdel Aal

Head of Department:
Prof. Ebtehal El-Demerdash
Date: October 2018

Course name	**Zoology 1**
code	**131/C**

Course matrix

Course Contents	A1	A2	A3	A4	A5	B1	B2	C1	C2	D1
- **Nutrition**										
- Muscular system, Digestive system, Circulatory system, Respiratory system, Excretory system, Reproductive system, skeletal system, Nervous system										
- Metabolism (free energy, biological oxidation, carbohydrate, fats and protein metabolism)										
Cytology - Prokaryotic & Eukaryotic cells - Cell membrane – transport across membrane										
Embryology: - Gametogenesis, fertilization, cleavage, gastrulation and early development of embryo										
Histology: - Epithelial, connective, muscular and nervous tissues and ***histology of organs***										
Molecular Biology and Genetics										

تم الاعتماد فى (محضر مجلس قسم الادوية و السموم)
جلسة رقم (1) بتاريخ 10-9-2019