

برنامج قسم علم الحيوان

تم افتتاح قسم علم الحيوان بافتتاح الكلية سنة 1974م حيث كان عدد طلاب القسم - في ذلك الوقت - (12) طالباً وطالبة ، بينما كان أعضاء هيئة التدريس ، وعددهم (8) جميعهم من المغتربين ، ويعد علم الحيوان من العلوم الملموسة التي لها اتصال مباشر بحياتنا ، لأنه يعطينا فكرة واضحة وكاملة عن عمليات وظائف أعضاء الجسم المختلفة ، وطريقة تكوين الخلايا ، والأنسجة منذ أن تبدأ أجنة صغيرة تنمو إلى الطور البالغ .

ولعل المتعة في دراسة هذا العلم هي أنه يعرف الطالب على الحيوانات التي تشاركه المعيشة في بيئته سواء الكائنات البحرية أو الصحراوية أو الحشرات ، ولهذا العلم دور مهم في القضاء على الأمراض المختلفة التي تسببها الفيروسات ، والطفيليات التي تصيب الأحياء النباتية والحيوانية ، كما يقبل الطلبة على دراسة علم الحيوان لدوره الفاعل في المحافظة على البيئة نتيجة للدراسات المكثفة لملوثات البيئة الهوائية ، والأرضية والمائية .

بدأ برنامج الدراسات العليا بقسم علم الحيوان منذ العام الجامعي (82/81) ، وبعدد محدود من الطلبة ومع أن هناك العديد من الظروف الصعبة ، وقلة الإمكانيات إلا أن هذا البرنامج لم يتوقف عن التطور والتحسين ، وقد استطاع القسم أن يمنح درجة الإجازة العالية (الماجستير) لعدد (40) طالباً (15) منهم الآن من أعضاء هيئة التدريس ، كما أن بعض طلاب الدراسات العليا بصدد التسجيل في برنامج وبعضهم الآخر في مراحل البحث المختلفة .

تُمنح درجة الإجازة العالية (الماجستير) في علم الحيوان وفقاً للشروط التي تنص عليها اللائحة

الداخلية للدراسات العليا بالكلية وبعد إنجاز الطالب (30) وحدة دراسية مقسمة على النحو التالي :

(1) مقررات إجبارية (9 وحدات دراسية) .

(2) مقررات اختيارية (15 وحدة دراسية) .

(3) 6 وحدات خاصة بالأطروحة .

أولاً : المقررات الإجبارية :

م	رقم المقرر	اسم المقرر	الوحدات	المقررات التمهيدية
1	2626	إحصاء وتحليل بيانات	3	
2	5569	كيمياء حيوية	3	
3	8500	ندوة بحث	1	
4	8501	طرق بحث	2	

ثانياً : المقررات الاختيارية (15 وحدة دراسية) وتقسم على النحو التالي :

(أ) يدرس الطالب مقررين دراسيين بواقع (6) وحدات دراسية كالتالي :

م	رقم المقرر	اسم المقرر	الوحدات	المقررات التمهيدية
1	8520	الأنسجة	3	
2	8540	وظائف الأعضاء	3	
3	8550	اللافقاريات	1	

(ب) يدرس الطالب مقررات دراسية بواقع (9) وحدات دراسية في مجال التخصص (مجال البحث)
يحددها الأستاذ المشرف على الأطروحة ، وهذه المقررات مقسمة إلى (9) مجموعات تخصصية
كالآتي :

الوحدات	اسم المقرر	رقم المقرر	المجموعة	
3	الوراثة الحيوانية	8510	الوراثة الحيوانية	
3	الوراثة الخلوية	8511		
3	الوراثة الجزيئية	8512		
3	الوراثة الكمية	8513		
3	علم وظائف الأعضاء	8520	فسلجة الحيوان (وظائف الأعضاء)	
3	الهضم والأبيض	8521		
3	الغدد الصماء والتكاثر	8522		
3	فسلجة الطيور	8523		
3	الفسلجة المقارنة	8524		
3	الفسلجة العصبية	8525		
3	الفسلجة الأمراض	8526		
3	تقسيم الحشرات	8530		الحشرات
3	الشكل العام للحشرات	8531		
3	فسلجة الحشرات	8532		
3	بيئة الحشرات	8533		
3	أمراض الحشرات	8534		
3	المكافحة المتكاملة للآفات	8535		
3	علم الأنسجة	8540	الأنسجة والأجنة	
3	الأجنة	8541		
3	كيمياء الأنسجة	8542		

الوحدات	اسم المقرر	رقم المقرر	المجموعة
3	علم الأسماك	8560	الأحياء البحرية
3	البيئة البحرية	8561	
3	البيولوجيا البحرية	8562	
3	بيئة الأسماك	8563	
3	علم البحار	8564	
3	I طفيليات	8570	الطفيليات
3	II طفيليات	8571	
3	طفيليات بيطرية	8672	
3	علم السموم	8580	السموم والتلوث
3	بيولوجيا التلوث	8581	
3	بيئة المبيدات	8582	
3	حبايات	8590	الفقاريات
3	تشريح مقارن	8591	

ثالثاً : الأطروحة (8599) (6 وحدات دراسية) .

M. Sc. Programs in Zoology

The programme leading to the degree of M.Sc in Zoology involves an advanced course of instruction, consisting of formal taught modules, which may include lectures, seminars, group discussions, laboratory work, course work, field work; and a research project taken within a chosen area of specialization. Graduate education and training has been co-ordinated within 10 major groups:

GROUP CODE	
8500-8509	General Courses
8510-8519	Group 1 Animal Genetics
8520-8529	Group 2 Animal Physiology
8530-8539	Group 3 Entomology
8540-8549	Group 4 Histology and Embryology
8550-8559	Group 5 Invertebrates
8560-8569	Group 6 Marine and Aquatic Biology
8570-8579	Group 7 Parasitology
8580-8589	Group 8 Toxicology and Pollution
8590-8598	Group 9 Vertebrates

Within each group are a variety of courses from which the supervisor may chose those most relevant to the student. Students are encouraged to study courses from other specializations, provided they are relevant to their course of study and complement it. Full details of M.Sc course structure for graduate Zoology students is available in a separate booklet.

Unless otherwise stated, all taught courses consist of 2 hour theory lectures, and a 3 hour practical session per week, that is, all courses have 3 credit hours. In contrast, research methodology, which is mainly a practical course, has 2 credit hours equivalent to two separate practical sessions per week. In addition, the seminar has 1 credit hour.

The following is a short description of the course syllabus offered by the department of Zoology. All the above mentioned programmes are under constant review and the department reserves the right to make changes to the courses, their contents, and may introduce new topics, whenever it deems necessary.

Description of Courses

(8500) Seminar

The student is expected to undertake a thorough library search and to write a report on a specific topic which may be either related to the student's research project or to his/her field of specialization. Presentation of the report and participation in group discussions of other reports are essential.

(8501) Research Methodology

Introduction to laboratory work and its tools. Health and safety in laboratories. Basic laboratory techniques and procedures. Experimental design to include control and replicates. Samples and sampling. Collecting, fixing and preserving animals. Developing observation skills.

Introduction to microscopy. Photography and photographs. Using biological systems. Analysis and presentation of data. The use of animals in research. General aspects of scientific writing. Organizing a poster display; giving an oral presentation; writing essays; sitting exams. Finding and using literature references.

(8502) Special Topics

The course covers in detail selected topics that have not been studied in other scheduled courses. It may thus be registered by students of any one of the specializations, and requires the supervisor's consent. The supervisor or tutor(s) should provide the department with the title and written syllabus of the suggested topic for approval. The number of credit hours is to be fixed by the course instructor and may not exceed 3. This course may include, whenever necessary, some irregular laboratory periods.

GROUP 1 ANIMAL GENETICS

(8510) Animal Genetics

Gene segregation in organisms. Multiple alleles. Sex determination and sex linkage. Nature of gene. Polygenic inheritance. Gene and chromosome mutations. Gene frequencies in populations. Recombinant DNA. Transgenic animals.

(8511) Cytogenetics

The architecture of the chromosome. Chromosome morphology. Types of chromosomes. Chemical structure and chromosome replication. Changes in chromosomal behaviour during mitotic and meiotic division. Crossing-over. Variation in chromosome structure and number. Agents affecting the occurrence and frequency of chromosomal aberrations. Chromosomes and sex determination.

(8512) Molecular genetics

Genome structure. Gene coding and expression. Molecular genetic variation. Gene mapping. DNA fingerprinting. Gene cloning and insertion. Transgenics.

(8513) Quantitative Genetics

Population genetics. Gene frequency. Change due to selection and genetic drift. Genetic basis of quantitative traits. Heritability. Correlation amongst relatives. Selection in short and long term. Design and analysis of selection experiments. Genetic correlations. Fitness inbreeding depression and heterosis.

GROUP 2 ANIMAL PHYSIOLOGY

(8520) Physiology

Cell physiology. Nerve and muscle. Neurophysiology. Cardiovascular physiology. Respiration. Renal physiology. Acid base Balance. Thermoregulation. Digestion and metabolism. Endocrinology. Reproduction.

(8521) Digestion and Metabolism

General principles of gastrointestinal functions. Transport and mixing of food in the alimentary tract. Secretory functions of the alimentary tract. Digestion and absorption in the gastrointestinal tract. Metabolism and temperature regulation.

(8522) Endocrinology and Reproduction

Brain peptides. Hypothalamic control of the pituitary. Feedback mechanisms. Response to changes in external and internal environments. Endocrine glands. Detailed study of the structure and function of male organs. Male hormones and behaviour. Evaluation of semen. Structural-functional-chemical details of the female organs. Changes in hormones and behaviour. Pregnancy. Parturition. Lactation. Techniques in reproduction: *in vitro* maturation of ovum; activation of sperm; *in vitro* fertilization; embryo freezing and transfer; embryo sexing and blastomere separation.

(8523) Avian Physiology

Introduction. Special aspects of anatomy of birds. Haematology. Avian nervous system. Cardiovascular system. Respiration. Fluid balance and renal

function. Digestion. Thermoregulation. Endocrinology. Reproduction. Physiology of the egg.

(8524) Comparative Physiology

Detailed study of the comparative aspects related to the main morphological-functional entities of representative animal species. Simple stomach and ruminant mammals, avian, desert and aquatic vertebrates as well as selected invertebrates will be within the scope of investigation. Topics deal with cellular metabolic reactions. The fundamental physiological features of the nervous, locomotor, cardiovascular, respiratory, digestive, renal and reproductive systems will be emphasized. Students are expected to present reports on selected topics and to participate in group discussions of such reports.

(8525) Neurophysiology

Design and basic function of the nervous system. Nerves, junctions and reflexes. Somesthetic sensory mechanisms. Special senses. Regulation of motor activity. Visceromotor control. Temperature regulation and environmental physiology. Neurophysiology of consciousness. Behavioural physiology.

(8526) Pathophysiology

Introduction. Disorders of the immune system. Infectious diseases and Neoplasia. Blood disorders. Nervous system disorders. Diseases of the skin. Pulmonary disease. Heart disease. Vascular disease. Disorders of endocrine glands. Gastrointestinal disease. Liver disease. Disorders of the exocrine pancreas. Renal disease.

GROUP 3 ENTOMOLOGY

(8530) Advanced Systematic Entomology

The science of Taxonomy. Theories of biological classification and their history. The hierarchy of categories and the higher taxa. Taxonomic characters. The species category. The polytypic species, population systematic and infraspecific categories. Taxonomic decisions on species level. The procedure of classifying. Classification, nomenclature and identification. The rules of Zoological nomenclature. Interpretation of the rules of nomenclature. Taxonomic publication.

(8531) Insect Morphology

General body form. Segmentation and the integument. Body wall processes. Molting. The head and its segmental appendages. The thorax. Thorax appendages. Wing venation. The abdomen. Alimentary canal. Excretory structures. Respiratory system. Circulatory system. Haemolymph and haemocyte. Nervous system. Association centers of the brain and sensory organs. Auditory organs. Reproductive systems. Muscles.

(8532) Insect Physiology

Embryonic development. The integument. Growth and differentiation. Respiration. Digestive system. Excretion. Nutrition and metabolism. Reproduction. Muscles and movement. The nervous system. The endocrine system.

(8533) Insect Ecology

Definitions and history of ecology. Natural selection and natural balance. Host selection and host specificity. Population dynamics. Ecological genetics. Trophic relationship. Demography. Population growth and life tables. Strategies in reproduction. The niche concept. Intraspecific and interspecific competition. Social systems and behaviour. Pollination ecology. Diapause. Factors affecting distribution and abundance of insects. Biotic potential. Environmental resistance and population equilibrium. Biological attributes of population. Methods of determining population size. Density dependent and density independent population action in population control.

(8534) Insect Pathology

Infectious and non-infectious diseases of insects such as injuries, nutrition and metabolic disturbances. Epizootiology of insect diseases. Resistance and immunity of insects against diseases. Different kinds of microbiota (bacteria, fungi, viruses, protozoa) pathogenic to insects.

(8535) Integrated Pest Management

General principles of pest management. Strategies and tactics in pest management. Examples of insect pests of Libyan plants and animals. Present and future of pest management in Libya.

GROUP 4 HISTOLOGY AND EMBRYOLOGY

(8540) Advanced Histology

Introduction and Definitions. Epithelial Tissues. Connective tissue. Blood and bone marrow. Muscular tissues. Nervous tissue. Cardiovascular system. Lymphatic system. Respiratory system. Digestive system. Urinary system. Female reproductive system. Male reproductive system. Endocrine system. Organs of special sense.

(8541) Advanced Embryology

Gametogenesis. Fertilization. Cleavage. Gastrulation. Neurulation. Extraembryonic structures. Development of the nervous system. Muscular development. Development of the skeletal system. Development of the digestive system. Development of the respiratory system. Development of the circulatory system. Development of the excretory system. Development of the reproductive system. Regeneration.

(8542) Histochemistry

Observation of living tissues. Tissue culture and transplantation. Autoradiography. Acidic and basic stains. Immunocytochemistry. Neurotransmitters and synapses. Metachromasia. Histochemistry of proteins, lipids, minerals and enzymes. Histopathology of some organs. Histochemistry of nucleic acids. Histochemistry of selective tissues.

GROUP 5 INVERTEBRATES

(8550) Invertebrates

Recent Invertebrate classification. Movement and fibrils. Muscle filaments and myonemes. Flagella and cilia. Movement and hydrostatics. Principles of hydrostatic skeleton in Cnidaria, Ctenophora, Porifera, Platyhelminthes and Nematoda. Movement, hydrostatics and coelom. Significance of coelom. Movement and metamerism. Significance of metamerism. Locomotion of Oligochaeta and Polychaeta. Movement and Arthropodisation. Skeleton of Arthropoda. Locomotion of Arthropoda, Mollusca and Echinodermata. Nutrition in Protozoa, Parazoa and Metazoa. Respiration. Excretion. Advanced circulatory and nervous systems and chemical co-ordination in Invertebrates. Endocrine glands of Invertebrate animals. Reproduction.

GROUP 6 MARINE AND AQUATIC BIOLOGY

(8560) Advanced Ichthyology

(8561) Fish Classification

(8562) Fish Biology

(8563) Fish Ecology

(8564) Limnology

GROUP 7 PARASITOLOGY

(8570) Parasitology I

The study of parasitic and helminth parasites with regards to the following: introduction; classification; diagnostic morphology; ultrastructure; pathogenesis; methods of transmission; host-parasite relationships; a brief mention of treatment; control and prevention. Emphasis is made on native and endemic infections.

(8571) Parasitology II

Epidemiology, biochemistry, physiology, nutrition and immunology of parasites and parasitic infections. Components of control programmes and development of integrated control programmes.

(8572) Veterinary Parasitology

Aims and importance of the course. Economic loss due to animal parasites. Zoonotic importance of parasites of domestic animals. The etiology, epidemiology, life cycle, pathogenesis, clinical findings, diagnosis, treatment, and control of animal diseases caused by protozoa, helminths, as well as those caused by arthropods will be covered. Major consideration will be given to those diseases prevalent among Libyan livestock.

(8573) Vector/Parasite Ecology

GROUP 8 TOXICOLOGY AND POLLUTION

(8580) Toxicology

General patterns of pesticide use. Evaluation of toxicity. Classification of insecticides. Mode of action of insecticides. Carbamates. Metabolism of insecticides. Entry of insecticides into animal systems. Dynamics of insecticidal movement within the animal body. Hazards of insecticides to man and domestic animals.

(8581) Pollution Biology

Assessment of toxicity. Metabolism of toxic substances by animals. Atmospheric toxicants. Pesticides. Toxic metals. Chlorofluorocarbon. Movement of insecticides in the environment. Movement of residues in the environment. Environmental alterations of insecticide residues.

(8582) Pesticide Ecology

Insecticides, herbicides, fungicides. Insecticides and the Arthropod fauna. Insecticides and soil invertebrates. Effects of insecticides on soil macroarthropods. Effects of insecticides on earthworms, slugs and nematodes. Fungicide effects on soil microflora, invertebrates and vertebrates. Herbicide effects on invertebrate and vertebrate fauna, and soil microflora. Effects of pesticides on wildlife.

GROUP 9 VERTEBRATES

(8590) Advanced Chordates

(8591) Advanced Comparative Anatomy

The vertebrate body. Protochordates. Parade of the vertebrates. Early vertebrate morphogenesis. Skin. Vertebrate skeleton. The vertebrate skull. The appendicular skeleton. Muscles. Digestive system. Respiratory system. Circulatory system. Urinogenital system. Nervous system. Sense organs. Endocrine organs.

(8599) Dissertation

Students are asked to write a dissertation on a subject chosen in close consultation with the supervisor, which must be submitted at least, three years after the start of the course, or within the full time allocated by the University (including extensions). This dissertation will account for 6 credit hours of the total hours accomplished by the graduate student. Student's are encouraged to begin trial experiments related to their research work at an early stage, to counteract shortages in facilities. However, actual work on the project should not begin before 50% of the course work has been attempted, and successfully completed.

Each student will be assigned a supervisor with whom he/she should maintain constant contact, both during the execution of the laboratory and / or field work and the writing of the dissertation. The supervisor will also guide the progress of the student during the entire period of his/her candidature.

قائمة بأعضاء هيئة التدريس الذين يقومون بتدريس
الدراسات العليا بقسم علم الحيوان

م	الاسم	الجنسية	الدرجة العلمية	التخصص
1	أ.د. عبدالله إبراهيم محمد	ليبي	أستاذ	سموم
2	أ.د. فاطمة فرج التومي	ليبية	أستاذ	امراض اسماك
3	أ.د. عبدالوهاب روؤف مهدي	عراقي	أستاذ	الغدد الصماء والتكاثر
4	أ.د. نظيمة عبدالجبار توفيق	عراقية	أستاذ	الأجنة والانسجة
6	د. محمود المهدي فضيل	ليبي	أستاذ مشارك	طفيليات-علم المناعة
7	د. حامد احميدة قاسم	ليبي	أستاذ مشارك	حشرات طبية-طفيليات
9	د. عبدالقادر خليفة يوسف	ليبي	أستاذ مساعد	بيولوجية جزئية
10	د. مفتاح سليمان المغربي	ليبي	أستاذ مساعد	تصنيف حشرات
11	د. رمضان سليمان قرقوم	ليبي	أستاذ مساعد	بيولوجية جزئية
12	د. عبدالله محمد المنصوري	ليبي	أستاذ مساعد	بيولوجية جزئية
13	د. سالم علي بوزريدة	ليبي	أستاذ مساعد	وراثة وتربية حيوان
15	د. امال إبراهيم الترهوني	ليبية	أستاذ مساعد	علم الانسجة
16	د. رقية عبدالله مرسل	ليبية	أستاذ مساعد	فسلجة حشرات
17	د. عبدالله محمد الهادي فضل	ليبي	أستاذ مساعد	بيئة حشرات