**الموضوع الثالث:- بشأن إعداد معايير ARS الخاصة بقسم الكيمياء والحيوان.**

**القـــرار :- قامت اللجنة بإعداد معايير برنامج الكيمياء والحيوان وكانت علي النحو الاتي:**

**Graduate skills**

1. Identify the basic principles of different branches of zoology to develop the ability to apply these principles in the development of society.
2. Develop students' skills to meet the requirements of the society takinginto account the economic, environmental, social, ethical and safety requirements.
3. Collect, analyze and present data using appropriate formats and techniques.
4. Assuming concepts and choosing appropriate solutions to solve problems on scientific basis.
5. Apply effectively the relevant information technology in all areas of biological sciences.
6. Participate effectively in an interdisciplinary and flexible working group in adaptation and decision-making.
7. Adopt continuous and self-learning and participate actively in research activities.
8. Recognize the scientific data and dealing with them in Arabic and English and any other languages.
9. Develop knowledge and experience to deal with contemporary laboratory techniques relevant to various disciplines in animal sciences.
10. Plan and conduct practical experiments using appropriate tools taking into account safety precautions, quality control processes, risk assessment and management, drafting of a report on experiments andevaluation of results.
11. Apply the concepts and theories of zoology to explain basic biological processes from cell to organism and ecosystems.
12. Describe the diverse ecosystems and the relationship of different organisms to the balance within these environments in terms of conservation, protection, economic return, competition, benefits andharms to the environment and society.
13. Identify modern topics and biotechnologies.
14. Illustrate the basic principles of different branches of chemistry.
15. Identify chemical constituents of organisms.
16. Relate between macro, and micro-molecules, function and structure of animal body.
17. Initiate the student appreciation for career entry position in either industrial, economical or environmental field.

# Intended Learning Outcomes (ILOs):

## a- Knowledge and Understanding:

**After completing the program, the student should be able to:**

a1. Explain the basic scientific facts, principles, concepts and techniquesrelated to animal science.

a2. Explains scientific theories and methods of their applications that explainand analyze data related to the fields of different branches of zoology.

a3. Explain the relationship between the topics studied in zoology and the environment.

a4. Identify background information on other relevant topics to understandrecent developments in zoology.

a5. Learn the basics of classification, terminology, naming and theenvironment of living organisms.

a6. Recognize the structure and function of different types of animal cells and cell organelles in single-cell, multicellular organisms and in disease conditionsa7. Determines the physiological aspects of living organisms.

a8. Understand the concepts of biodiversity and conservation of naturalresources.

a9. Identify the diversity of living organisms through the study of genetics andstages of growth and development.

a10. Determine the methods of biological activity of different animal organisms and their environments, microstructures and bio functionswithin the body of these organisms.

a11. Demonstrate the basic concepts in physical chemistry.

a12- Manifest an understanding of fundamental chemical principles inorganic chemistry.

a13- Illustrate the principles of organic chemistry.

a14- Define the principles and procedures used in both qualitative andquantitative chemical analysis.

a15- Mention the role of applied chemistry in our life.

a16- Characterize the properties of the major groups of biochemistry.

a17- Describe the principles of both organic and inorganic reaction mechanisms.

a18- Develop investigative, experimental and solving problems.

a19- Know the main parameters and concepts of genetics, genetic engineeringand molecular biology.

a20- Connect knowledge to other related areas of basic sciences.

a21- Beyond basic sciences, general knowledge is also achieved through courses that cover topics concern Physics, Botany, Microbiology, Mathematics, Geology, Language, Relation, Law, Egyptology, Humanrights.

## b- Intellectual Skills

b1. Distinguish between basic facts, theories, concepts and principles ofzoology and topics related to basic science.
b2. Analyzes, collects and interprets relevant experimental data and referencesto analyze and solve problems in all zoology disciplines.
b3. Analyze and criticize qualitative and quantitative scientific data relevant tovarious topics in zoology to make appropriate decisions.
b4. Analyzes and interprets biological data for a variety of information sourcesin zoology and related studies.
b5. Assess the impact of animal organisms on the ecosystem and their relationship.
b6. Assess the interrelationships between basic biology, diversity, environment, and the evolution and behavior of animal populations.
b7. Compare ecosystems in terms of conservation, economic return and sustainability.
b8. Discover the diversity of biological processes through the study of molecular and cellular structures and biological and genetic processes of livingorganisms represented in the animal kingdom.
b9. Apply their knowledge and understanding in finding solution of bothqualitative and quantitative problems.
b10. Make and record accurate observations and measurements.
b11. Recognize and analyze problems.
b12. Evaluate and interpret chemical information and data.
b13. Suggest solutions of the problems.
b14. Present scientific material clearly and correctly.

## c- Professional and Practical Skills

c1. Conduct basic experiments in the laboratory and field safely andeffectively taking into account scientific guidance.
c2. Plan, design and report on practical projects through teamwork and using appropriate techniques.
c3. Assess the risks related to the use of chemicals, animal models andlaboratory skills in safe handling to avoid risks.
c4. Use laboratory techniques, instruments, and tools efficiently, in an ethicaland responsible manner, to examine living organisms and biological systems.
c5. Solve problems using a variety of formulas, methods and methods.
c6. Employ appropriate statistical and computational tools to analyze and interpret the results of experiments based on theories related to chemistry andanimal science.
c7. Collects and preserves animal samples, prepares sections for microscopic examination and identifies different types of cells and tissues.
c8. Work safely in the laboratory with awareness of standard procedures.
c9. Use a wide range of laboratory techniques.
c10. Design chemical experiments.
c11. Operate the standard chemical instrumentation such as used for structural investigations and separation.
c12. Interpret data derived from laboratory observations and measurements.

c13. Make notes on applied physics, application of botany and microbiology, mathematics, Geology.

## d- General and transferable Skills

After completion program the student will be able to:

d1. Use information and communication technology efficiently.

d2. Recognize the roles and responsibilities, identify tasks and demonstrateefficiency indicators.

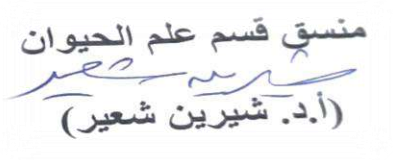
d3. Think independently and solves problems on scientific ethical grounds.

d4. Work in a team and communicate effectively with others.

d5. Identifies problems related to society, taking into account the ethics andtraditions of society

d6. Acquire continuous self-learning

d7. Deal with property rights legally and ethically.




**********