



Common Course Number: ZOO-1010

Course Title: Zoology

Catalog Course Description: A survey of the animal kingdom based on a detailed study of the morphology, anatomy, and physiology of selected representative specimens.

Credit Hours: 3 hour lecture

Prerequisites: none

Co requisite: ZOO 1010L. Special fee.

Course competencies:

Competency 1: Zoology as a Science

Upon successful completion of this course, the student will show knowledge of Zoology as a Science by:

- A. The nature of zoology as a subdiscipline of biology.
- B. The shared characteristics of life.
- C. The nature of the subdisciplines of zoology.
- D. The structure and use of the scientific method of inquiry.

Competency 2: The Nature and Development of Evolutionary Theory

Upon successful completion of this course, the student will show knowledge of the nature and development of evolutionary theory by:

- A. The definition of organic evolution.
- B. The history of the development of the theory of organic evolution by natural selection.
- C. The significance of population genetics to modern evolutionary history.
- D. The contributions of biogeography, ecology, and molecular biology to our modern understanding of the history of the animal life on plant Earth.
- E. The nature of microevolution.
- F. The role of genetic theory in understanding how variation in animal populations arises.
- G. The nature and significance of the Hardy-Weinberg theorem.
- H. The nature of the five microevolutionary agents.
- I. The nature of speciation and its mechanisms.

Competency 3: .The Processes of Animal Classification and Phylogenetic Reconstruction

Upon successful completion of this course, the student will show knowledge of the process of animal classification and phylogenetic reconstruction by:

- A. The nature of systematics, taxonomy, and nomenclature as applied to the classification of animals.
- B. The significance of the work of Karl von Linne in relation to our modern system of classification.
- C. The nature of the taxonomic hierarchy as used in animal classification.
- D. The goal of animal systematics in the arrangement of animals into groups reflecting evolutionary relationships.
- E. The use of branching evolutionary-tree diagrams to represent animal relationships.
- F. The nature of the various body plans seen in the animal kingdom.

Competency 4: The Diversity of Animal Life

Upon successful completion of this course, the student will show knowledge of the diversity of animal life by:

- A. The evolutionary position and relationship for the members of the Parazoa.
- B. The evolutionary position and relationship of the members of the Radiata.
- C. The evolutionary position and relationship of the acoelomates.
- D. The evolutionary position and relationship of the pseudocoelomates.
- E. The evolutionary position and relationship of the protosomes.
- F. The evolutionary position and relationship of the deuterostomes.

Competency 5: Mendelian Patterns of Inheritance

Upon successful completion of this course, the student will show knowledge of mendelian patterns of inheritance by:

- A. The contributions of Gregor Mendel to the modern science of genetics.
- B. The pattern of inheritance of dominance.
- C. The principle of segregation.
- D. The principle of independent assortment.
- E. The inheritance patterns of multiple alleles, incomplete dominance, codominance, and polygenes.

Competency 6: Reproduction and Development in Animals

Upon successful completion of this course, the student will show knowledge of reproduction and development in animals by:

- A. Reproduction as a property of life.
- B. The distinction between asexual and sexual reproduction.
- C. The advantages and disadvantages of asexual and sexual reproduction.
- D. The types of asexual reproduction, including fission, budding, fragmentation, and parthenogenesis.
- E. The types of sexual reproduction, including monoecious and dioecious modes.
- F. The types of fertilization, including external and internal forms.

Competency 7: Animal Behavior

Upon successful completion of this course, the student will show knowledge of animal behavior by:

- A. The nature of animal behavior, including its structural and functional requirements.
- B. The nature of proximate and ultimate causes of animal behavior.
- C. The distinction between instinctive and learned behavior.
- D. The types of learned behavior, including habituation, classical conditioning, instrumental conditioning, latent learning, and insight learning.
- E. The nature of animal communication, including visual, acoustic, tactile, and chemical modalities.
- F. The nature of behavior ecology, including habitat selection and foraging behavior.
- G. The nature of social behavior, including agonistic behavior, territoriality, dominance hierarchies, and altruism.

Competency 8: Ecology

Upon successful completion of this course, the student will show knowledge of ecology by:

- A. The nature of the science of ecology.
- B. The role of abiotic factors in an animal's relationship to its environment.
- C. The dynamics of animal populations, their regulation, and their patterns of density.
- D. The nature of intraspecific competition.
- E. The types of interspecific interactions, including herbivory, predation, interspecific competition, coevolution and symbiosis.
- F. The adaptive value of camouflage, aposematic coloration, and mimicry.
- G. The structure of animal communities, including the niche concept.
- H. The nature of successional change in communities.
- I. The structure and function of ecosystems, including trophic structure and biogeochemical cycles.
- J. The diversity of the Earth's terrestrial and aquatic ecosystems.
- K. The nature of anthropogenic environmental problems.