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.
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 planet 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.

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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 tropic structure and biogeochemical cycles.
J. The diversity of the Earth's terrestrial and aquatic ecosystems.
K. The nature of anthropogenic environmental problems.