University of Ghana  
Department of Zoology  
Sample Fall Courses

**ZOOL 301 Comparative Chordate Biology**  
Systematics of the chordates; comparative biology of lower chordates; biology of agnathous vertebrates biology and evolutionary relationships of the vertebrates; comparative embryology of chordates.

**ZOOL 303 Comparative Physiology**  
Comparative physiology of nutrition and digestion; respiration and metabolism; respiratory proteins and body fluids, ionic, osmotic relations and excretion, excretory substances and pathways, excretory organs; muscles and muscular activity, nerves and nervous activity; the brain and sense organs; hormones and reproduction; the physiology of reproduction.

**BIOL 315 Principles of Genetics**  
Introduction to the principles of genetic and chromosome cytology from the molecular to the population aspects, including applications of the principles in animal breeding, plant breeding and applied human genetics.

**BIOL 317 Biometry**  
Statistics as a tool in biological research; quantitative methods in biology. Basic experimental design, sampling, representation of data; sets, matrices and basic statistical methods including different statistical software for data analyses. Field data collection and report writing.

**ZOOL 401 Animal Behaviour**  
Factors that affect behaviour of animals; analyses of complex behaviour patterns involved in activities like feeding, reproduction, sociality and migration.

**ZOOL 403 Environmental Physiology**  
Physiological adaptations of animals to the marine, freshwater and terrestrial environment; temperature and animals; water and animals: ionic and osmorrregulation in aquatic animals, water balance in terrestrial animals; light and animals, water rhythms, seasonal cycles, light production in animals; adaptation to extreme environments; animals at high altitude, divers and hydrothermal vents.

**ZOOL 405 Animal Ecology**  
The concept of the niche overlap and competition; ecological segregation; species diversity – measurement and examination of causes of diversity differences; ecological energetics – food chains, energy flow, ecological efficiencies, productivity; methods of assessing the diet and food intake; construction of food webs; methods of estimating production and construction of energy budgets; predator-prey relationships; introduction to population ecology.
**ZOOL 407 Population Ecology**
Methods of estimating population density and size; absolute and relative measures; use of indices. Parameters of population dynamics; growth models; natural control and regulation of population sizes; predator-prey relationships; construction of life tables; key-factor analysis.

**ZOOL 409 Marine Biology**
The sea as an environment; marine plants and primary production; major groups of marine invertebrates – morphology, systematics, biology, life cycles, larva forms, pelagic and benthic life, ecology – structure of marine communities; special ecological areas – intertidal zones, hydrothermal vents, and deep sea habitats.

**ZOOL 411 Freshwater Zoology**
Composition, ecology and adaptation of invertebrates in lentic and lotic systems; plankton, neuston, benthos and aufwuchs; organisms in special environments; groundwater, swamps, and saline water; temporal and thermal waters; role of vertebrates in aquatic systems; pollution – effects of pollutants on aquatic systems and aquatic organisms; secondary production and energy flow.

**ZOOL 413 Conservation Biology**
Relation between biological and physical resources; principles of biodiversity conservation; indigenous conservation strategies and introduced management systems of ecosystems and wildlife; conservation of water catchment and soil; environmental pollution; Ghana’s Environmental Action Plan; international conservation measures; international conservation treaties; climate change and global environmental problems and their effects on biodiversity.

**ZOOL 415 Evolution**
History and concepts of evolution; Darwinism; processes of evolution; natural selection; evidence of evolution; interaction between species and co-evolution; strategies for adaptation and survival; social organization; biography.