

SKILL ENHANCEMENT COURSE (SEC)
BZO: S704 Animal Behavior
(Credits: Theory-2)

SEMESTER – VII

Lectures: 30

Unit 1

Introduction to Animal Behavior

Origin and history of Ethology; Pioneers of Modern Ethology: Karl von Frisch, Ivan Pavlov, Konrad Lorenz, Niko Tinbergen; Proximate and ultimate causes of behavior;

Unit 2

Patterns of Behavior

Stereotyped behaviors (Orientation, Reflexes); Individual behavioral patterns; Instinct *versus* Learned behavior; Associative learning, Classical and Operant conditioning, Habituation, Imprinting

Unit 3

Social Behavior

Social Behavior: Concept of Society, Communication and the senses (Chemical, Tactile, Auditory, Visual); Altruism, Inclusive fitness, Hamilton's rule; Insects' society (Example: Honey bee); Foraging in honey bee and advantages of the waggle dance.

Unit 4

Introduction to Chronobiology

Historical developments in chronobiology, Biological oscillation: the concept of Average, amplitude, phase and period. Adaptive significance of biological clocks

Unit 5

Biological Rhythm

Characteristics of biological rhythms; Short-and Long-term rhythms; Circadian rhythms; Tidal rhythms and Lunar rhythms; Concept of synchronization and masking; Photic and nonphotic zeitgebers; Circannual rhythms; Photoperiod and regulation of seasonal reproduction of vertebrates

Lab Course BZO: P751 REPRODUCTIVE ZOOLOGY

1. Study of animal house: set up and maintenance of animal house, breeding techniques, care of normal and experimental animals.
2. Examination of vaginal smear rats from live animals.
3. Surgical techniques: principles of surgery in endocrinology. Ovarectomy, hysterectomy, castration and vasectomy in rats.
4. Examination of histological sections from photomicrographs/ permanent slides of rat/human: testis, epididymis and accessory glands of male reproductive systems; Sections of ovary, fallopian tube, uterus (proliferative and secretory stages), cervix and vagina.
5. Human vaginal exfoliate cytology.
6. Sperm count and sperm motility in rat
7. Study of modern contraceptive devices

LAB COURSE BZO: P752 APPLIED ZOOLOGY

1. Study of permanent slides/photomicrographs and specimens of *Plasmodium vivax*, *Entamoeba histolytica*, *Trypanosoma gambiense*, *Schistosoma haematobium*, *Ancylostoma duodenale* and *Wuchereria bancrofti*
2. Study of arthropod vectors associated with human diseases: *Pediculus*, *Culex*, *Anopheles*, *Aedes* and *Xenopsylla*.
3. Study of insect damage to different plant parts/stored grains through damaged products/photographs.
4. Identifying feature and economic importance of *Helicoverpa* (*Heliothis*) *armigera*, *Papiliodemoleus*, *Pyrillaperpusilla*, *Callosobruchus chinensis*, *Sitophilus oryzae* and *Tribolium castaneum*
5. Field Collection of economic important insects (Larva and adults)
6. Visit to poultry farm or animal breeding centre. Submission of visit report
7. Maintenance of freshwater aquarium