

ETHOLOGY

(Credit: 3)

Course Code:

Course Objective: To impart basic knowledge on animal behavioural patterns and their role and to explain the importance of evolution for animal behaviour.

Learning outcome: Students will acquire new knowledge and ideas in the mechanisms of instinct and behaviour, understand how animals learn, analyse any problem with animal behaviour, and understand the importance of evolution for animal behaviour. Students will acquire knowledge of natural selection and behaviour, the relationship between predators and prey, and social behaviour.

UNIT-I

Introduction to Ethology- Branches and significance of Ethology, Ethophysiology. Ethoendocrinology, Neuroethology, Human ethology, Behavioural genetics and Sociobiology. Concept of Ethology: Introduction, definition and outline, Fixed action pattern.

UNIT-II

Social organization and its advantages. Social behaviour, Parental care. Courtship and mating, aggression and territorial behaviour, evolution of social systems. Home range, Core area.

UNIT-III

Neuroethology - Structure of mammalian brain and behaviour. Hypothalamus and innate behaviour. Behavioural endocrinology. Orientation- taxis and kinesis, bird migration and navigation

UNIT-IV

Learning and Imprinting: Introduction, Habituation, Conditioning, Trial and Error. Neural mechanism of learning, short- and long-term memory, neural mechanism of learning. Feeding and sexual strategies in animals.

UNIT-V

Co-operation, Reciprocation, Altruism, Reciprocal Altruism, Proximate and ultimate causation, Kin Selection, group selection, Darwinian fitness, individual fitness. Communication in animals: Tactile, visual, Auditory, Echolocation, Infra and ultra sounds, Pheromones in invertebrates and vertebrates, Honey bee language, circle dance, waggle dance.

References:

1. Alcock J. (2013). Animal Behaviour. Sinauer Associate Inc., USA.
2. McFarland D. Animal Behaviour. (1982). Pitman Publishing Limited, London, UK.
3. Vinod Kumar (2002) Biological Rhythms. Narosa Publishing House, Delhi/ Springer Verlag, Germany
4. Dunlap J. C, Loros J. J, DeCoursey P. J. (2004) Chronobiology Biological Time

keeping. Sinauer Associates, Inc. Publishers, Sunderland, MA, USA

5. Manning, A. and Dawkins, M. S. (2012). An Introduction to Animal Behaviour. Cambridge University Press, UK.