

OPEN ELECTIVE COURSE
BSE 513 BEHAVIOURAL BIOLOGY

Course Outcomes:

After successful completion of the course, students will be able to:

- CO 1. Understand the evolution of social behaviour and types of social behaviours
- CO 2. Discern various types of social behaviours across organisms
- CO 3. Understand communication and the adaptive significance of these behaviours
- CO 4. Appreciate how epigenetics moulds behaviour

UNIT 1 (13 hours)

Sociobiology: Definition, introduction, history, scope, and significance. Basics of ecology and society; The evolution of animal societies. Instinctive, or intuitive behavior; Evolutionarily stable strategy hypothesis. Social behaviors: Aggregation, reproductive behaviour, territoriality, pack hunting, dominance interactions, parental care, and cooperative interactions within families.

UNIT II (13 hours)

Eusociality in insects: Hive society of social insects (ants, bees, and wasps); Eusociality in crustaceans (shrimps); mammals (mole rats); Cooperative breeding in birds, parental care. Social interactions in microbes - cooperation, conflict, and population. Spatial structure. Plant-pollinator networks.

UNIT III (13 hours)

Communication for social interactions: plumage, morphological characters, vocalizations, pheromones, vibrations; The adaptive significance of social organization; altruism; cooperation; courtship and reproductive behavior; the genetics, development, and epigenetics of social behavior.

References:

1. Aronson, E., & Aronson, J. (2018). The social animal. Worth Publishers, Macmillan Learning.
2. Brooks, D. (2012). The social animal: The hidden sources of love, character, and achievement. Random House Incorporated.
3. Buss, D. M. (Ed.). (2005). The handbook of evolutionary psychology. John Wiley & Sons.
4. Martin, P., Bateson, P. P. G., & Bateson, P. (1993). Measuring behaviour: an introductory guide. Cambridge University Press.
5. Peterson, G. R. (2005). Sociobiology: The new synthesis. 25th Anniversary edition.
6. Wilson, E. (2000). Sociobiology: the new synthesis, 25th anniversary edition.