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 mouldsbehaviour

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.