

CORE COURSE XIII - ANIMAL BEHAVIOUR

Unit 1.

History and classical ethology: introduction to ethology; history of ethology; concepts, goals and terminology. Learning and memory: conditioning; habituation; insight learning; association learning; reasoning; cognitive skills.

Unit 2.

Communication: chemical; visual; light; audio; species specific songs; evolution of language (primates). Biological rhythms; circadian and circannual rhythms; orientation and navigation; migration of fish, turtles and birds.

Unit 3.

Neural and hormonal control of behaviour. Ecological aspects of behaviour: habitat selection, food selection, optimal foraging theory, homing, dispersal, territoriality.

Unit 4.

Prey-predator relationship: predator versus cryptic prey, warning colouration, predator-prey arms races, brood parasites and their hosts. Sociobiology: social and sexual behaviour, selfishness, cooperation, altruism, kinship, inclusive fitness, reciprocal altruism, concepts of selfish genes.

Unit 5.

Reproductive behaviour: evolution of sex and reproductive strategies, mating systems, courtship, sperm competition, sexual selection, parental care. Genetic and environmental components in the development of behaviour.

Recommended Text Books:

1. Alcock, J. 2001. *Animal Behaviour: an Evolutionary Approach*. 7th edn. Sunderland, Associates, Inc. Sunderland, Massachusetts.
2. Brown, J. L. 1975. *The Evolution of Behaviour*. New York: W.W. Norton.
3. Dethier, V. G. and Stellar, E. 1961. *Animal Behaviour*. Englewood Cliffs, New Jersey: Prentice Hall.
4. Drickamer, L., C. Vessey, S. H. and Jacob, E. M. 2002. *Animal Behaviour: Mechanisms, Ecology, Evolution*. 5th edn. New York: McGraw-Hill.
5. Krebs, J. R. and Davies, N. B. 1993. *An Introduction to Behavioural Ecology*. 3rd edn. Oxford: Blackwell.
6. Manning, A. and Dawkins, M. S. 1998. *An Introduction to Animal Behaviour*. 3rd edn. Cambridge: Cambridge University Press.
7. Wilson, E. O. 1975. *Sociobiology: the New Synthesis*. Cambridge, Massachusetts: Harvard University Press

Recommended Reference Books:

1. Audeskirk, T., Audeskirk, G. and Byers, B. E. 2002. *Biology, Life on Earth*. Upper Saddle River, New Jersey: Prentice Hall.
2. Carew, T. J. 2000. *Behavioural Neurobiology: the Cellular Organization of Behaviour*. Sunderland, Massachusetts: Sinauer.
3. Eibl-Eibesfeldt, I. 1975. *Ethology: the Biology of Behaviour*. 2nd edn. New York: Holt, Rinehart & Winston.
4. Freeman, S. 2002. *Biological Science*. Upper Saddle River, New Jersey: Prentice Hall.
5. Gadagkar, R. 1998. *Survival Strategies*. Bangalore, Hyderabad: Universities Press.
6. Goodenough, J., McGuire, B and Wallace, R. A. 2001. *Perspectives on Animal Behaviour*. 2nd edn. New York: J. Wiley.
7. Krebs, J. R. and Davies, N. B. 1997. *Behavioural Ecology: an Evolutionary Approach*. 4th edn. Oxford: Blackwell.
8. Mathews, G. G. 2001. *Neurobiology: Molecules, Cells, and Systems*. 2nd edn. Malden, Massachusetts: Blackwell Science.
9. Nelson, R. J. 2000. *An Introduction to Behavioural Endocrinology*. Sunderland, Massachusetts: Sinauer.
10. Simmons, P. and Young, D. 1999. *Nerve Cells and Animal Behaviour*. Cambridge: Cambridge University Press.
11. Stutchbury, B. J. M. and Morton, E. S. 2001. *Behavioural Ecology of Tropical Birds*. San Diego: Academic Press.
12. Trivers, R. L. 1971. The Evolution of Reciprocal Altruism. *Quarterly Review of Biology*. Vol. 46: 35-57.
13. Wynne, C. D. L. 2001. *Animal Cognition: The Mental Lives of Animals*. Basingstoke: Palgrave.
14. Wynne-Edwards, V. C. 1962. *Animal Dispersion in Relation to Social Behaviour*. Edinburgh: Oliver & Boyd.