



Code	Subject Title	Cr. Hrs	Semester
ZOOL-305	Animal Physiology II	3	V
Year	Discipline		
3	Zoology		

**Physiological Mechanisms at Cell:** Cellular membrane and transmembrane transport; resting membrane potentials; Generation and conduction of action potentials; synaptic transmission; Membrane receptors.

**Nervous System:** Organization of nervous system; General sensory system; Visual, Auditory, Vestibular and Chemical sensory system.

**Muscle and Movements:** Molecular basis of contraction; Muscles activity on skeleton; Adaptation of muscles for various activities; Muscles in the walls of hollow organs.

**Endocrine System:** General principles of endocrine physiology; Hormones in homeostasis of metabolism; Endocrine regulation of metabolism of calcium and phosphate; Parathyroid gland, Calcitonin and Cholecalciferol; Hypothalamus and Pituitary: Hypothalamic regulation of pituitary, pituitary gland hormone in physiological coordination; Thyroid gland: Functional anatomy, biosynthesis, regulation and roles in physiological functions, mechanism of thyroid hormones action; Adrenal cortex: Hormones biosynthesis, physiological roles and control; Adrenal medulla: Hormones biosynthesis, physiological roles, and hypothalamic-pituitary-adrenocortical axis, adrenal medulla and sympathetic nervous system together integrate responses to stress; General reproductive mechanisms: Synthesis and physiological roles of gonadal steroids, Second messenger and signal-transduction pathways.

#### Textbooks

1. Guyton, A.C. and Hall, J.E., 2006. Textbook of Medical Physiology, 11<sup>th</sup> Edition. W.B. Saunders Company, Philadelphia.
2. Withers, P.C., 1992. *Comparative Animal Physiology*. Saunders College Publishing, Philadelphia.
3. Tharp, G. and Woodman, D., 2011. Experiments in Physiology, 10<sup>th</sup> Edition. Prentice Hall, London.

#### Additional Readings

1. Randall, D., Burggren, W., French, K. and Fernald, R., 2002. *Eckert Animal Physiology: Mechanisms and Adaptations*, 5<sup>th</sup> ed. W.H. Freeman and Company, New York