

LSC 454 - Animal Physiology

1. Tissue system and their functions, epithelial tissue, connective tissue, muscular tissue and nervous tissue.
2. Principles of physiology, relationship between structure and function, adaptation, acclimatization, acclimation, homeostasis and feedback controls, conformity and regulation.
3. Endocrine glands, hormones secretory mechanisms, endocrine and neuroendocrine systems, cellular mechanisms and physiological effects of hormones.
4. Nervous systems in invertebrates and vertebrates.
5. Movement and muscle, electrophysiology and biochemistry of contraction in skeletal, cardiac and visceral muscles.
6. Circulatory systems, properties of myogenic and neurogenic hearts, electrocardiogram, hemodynamics, response to extreme conditions such as exercise and haemorrhage, neural control of cardiovascular system.
7. Respiratory system, respiratory pigments, transport of gases in blood, respiratory response to extreme conditions such as hypoxia and exercise, physiology of respiration and neural control of breathing.
8. Excretory system, osmoregulation, conformers, obligatory exchanges of ions and water, osmoregulation in water and terrestrial environment, physiology of kidney.
9. Digestive system, types of feeding, digestion, metabolism, and absorption, physiology of gastrointestinal system, neural and hormonal regulatory mechanisms.
10. Energetics of metabolism, metabolic rate, energetics of locomotion, energetics of body rhythms, energetics of reproduction.
11. Temperature dependence of metabolic rate, determinants of body heat and temperature, thermal biology of ectotherms, heterotherms and endotherms.
12. Asexual and sexual reproductive systems, gonads, gametogenesis and its regulation, fertilization, capacitation.

Suggested Readings

1. Animal physiology - by Randall Burggren & French
2. Animal Physiology - by Hill, Wyse & Anderson
3. Medical Physiology - by Guyton and Ganong