

**EFB 462/662 - ANIMAL PHYSIOLOGY: ENVIRONMENTAL & ECOLOGICAL
Schedule - Fall 2007**

<i>Date</i>	<i>Topic</i>	<i>Readings</i>
Week 1	Introduction to course. What physiology is. Homeostasis and negative feedback regulation. Respiratory gas exchange. Gas exchange in aquatic environments.	Ch 1
Week 2	Respiratory gas exchange. Gas exchange in terrestrial environments. The mammalian lung. The bird lung. Insect respiration. Self-study questions 1.	Ch 1
Week 3	Respiratory gas exchange. Gas transport in blood. Function of hemoglobin. Carbon dioxide transport. Self-study questions 2.	Ch2
Week 4	Blood circulation. The vertebrate heart. Physics of blood flow and distribution. Capillary exchange. Self-study questions 3.	Ch 3
Week 5	Biological energetics. Basic concepts of bioenergetics. Feeding and digestion. Nutrition and chemical defence. Self-study questions 4.	Ch 4
Week 6	The metabolic rate. Energy consumption and storage. Body size and body shape. Cost of locomotion. Self-study questions 5.	Ch 5
FIRST SEMESTER EXAMINATION (time and date TBA)		
Week 7	Temperature. Effect of temperature on organisms. Temperature acclimation. Tolerance to extreme temperatures. Self-study questions 6.	Ch 6
Week 8	Temperature. Regulation and defence of body temperature. Homeothermy and endothermy. Heat balance. Torpor and hibernation. Self-study questions 7.	Ch 7
Week 9	Water. Osmosis and diffusion. Hydric environments. Principles of water balance. Self-study questions 8.	Ch 8
Week 10	Water. Organs of water balance. Solute balance. Acid-base balance. Nitrogen excretion. Self-study questions 9.*	Ch 9

Week 11	Muscle and locomotion. Movement and muscle. Molecular motors. Rigid skeletons. Hydrostatic skeletons. Buoyancy regulation. Locomotory energetics. Self-study questions 10.	Ch 10
Week 12	Information processing and neural integration. Function of nerve cells. The synapse. Neural networks and signal processing. Self-study questions 11.	Ch 11
Week 13	Hormonal control. Hormone actions and receptors. The vertebrate endocrine system. The neuroendocrine system. Arthropod hormones. Self-study questions 12.	Ch 12
Week 14	Sensory systems. Energy transduction and signal processing. Tactile sense. Hearing. Vision. Taste. Olfaction. Self-study questions 13.	Ch 13

SECOND SEMESTER EXAMINATION (*time and date TBA*)
