Liverpool John Moores University

Title:	ANIMAL PHYSIOLOGY
Status:	Definitive
Code:	**4004NATSCI** (112571)
Version Start Date:	01-08-2015
Owning School/Faculty:	Natural Sciences & Psychology
Teaching School/Faculty:	Natural Sciences & Psychology

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Academic Level:	FHEQ4	**Credit Value:**	24.00	**Total Delivered Hours:**	64.50
Total Learning Hours:	240	**Private Study:**	175		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	34.000
Practical	18.000
Seminar	8.000
Workshop	3.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	exam	multiple choice and short answer questions	40.0	1.50
Presentation	seminar	Group seminar	30.0	
Test	MCQ		30.0	

Aims

To provide an introduction to the major physiological processes and homoeostasis in animals. Adopting an adaptive approach, this module follows the development of animal organ systems according to influential environmental drivers.

Learning Outcomes

After completing the module the student should be able to:

1 Describe the physiological and biochemical basis to fueling and maintaining homeostasis in animal tissues.
2 Identify how animals adapted their physiology to conserve homeostatic control as they diverged and increased in complexity
3 Demonstrate the relationship behind influential environmental factors and the function of animals or humans in their environment.
4 Draw comparisons between organ systems epitomising distinct solutions to physiological challenges.
5 Demonstrate competence in the manipulation and display of physiological data.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Exam	1	2	3	4
group seminar	1	4	5	
MCQ test	1	2	5	

Outline Syllabus

Introduction: What do we mean by animal physiology? The internal and external environments. The concept of homeostasis.

The periodic table, structure of atoms and molecules. Different types of chemical bonds. Chemical symbols, formulae and chemical equations. Solutions, concentrations (e.g. molarity, ppm), dilution factors, the measurement of pH and how it affects chemical processes.

Circulatory physiology: transport of respiratory gases; general principles behind circulatory design; limits imposed by body size on circulatory strategy.

Respiratory physiology: Physical factors affecting exchange of respiratory gases; the biomechanics & control of gas exchange in animal phyla; respiration in extreme environments.

Feeding and Digestion: Absorption across body surfaces; energy production and storage; feeding strategies in simple and complex animals; digestive strategies; nutritional requirements in animals

Metabolism: Metabolic rate; implications of body size & scaling; energy costs of locomotion.

Thermoregulation: Thermoregulatory terminology; fundamental & principles associated with thermoregulation in animals; adaptive strategies to temperature change in animals.

Osmoregulation: The aquatic basis of life; osmotic gradients and osmotic pressure; cellular mechanisms of ion and water exchange; ion and water regulation in aquatic environments; challenges to Osmoregulation in terrestrial environments.
Major nitrogenous end products and their excretion.

Summary lecture: Integration of physiological systems

Learning Activities

Module delivered using lectures, practicals and a group seminar exercise.

Notes

An introduction to the major physiological processes and the concept of homoeostasis in animals. Adaptive functions of the respiratory, circulatory, digestive, thermoregulatory & osmoregulatory systems in aquatic and terrestrial environments.