Liverpool John Moores University

Title:	PHYSIOLOGICAL ECOLOGY
Status:	Definitive
Code:	**6003NATSCI** (112596)
Version Start Date:	01-08-2013
Owning School/Faculty:	Natural Sciences & Psychology
Teaching School/Faculty:	Natural Sciences & Psychology

Team	Leader
Fatima Perez De Heredia Benedicte	Y
Alan Gunn	
Richard Brown	
Jennifer Sneddon	
Dave Wilkinson	

Academic Level:	FHEQ6	**Credit Value:**	24.00	**Total Delivered Hours:**	42.00
Total Learning Hours:	240	**Private Study:**	198		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	32.000
Practical	7.000
Workshop	1.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	exam	Essay and Short Answer Questions.	40.0	2.00
Test	Interpret.	Timed Interpretative Question	30.0	
Report	Prac rpt	Practical Report.	30.0	

Aims

To investigate the adaptive responses of physiological processes of animals to environmental change and stress in terrestrial, freshwater and marine ecosystems.

Learning Outcomes

After completing the module the student should be able to:

1 Discuss the interdependence of individual animals and their environment.
2 Critically evaluate physiological, ecological and behavioural adaptations needed to live in environments ranging from freshwater to marine.
3 Discuss the behavioural, whole animal, systematic and cellular strategies which combine to optimise survival in extreme conditions.
4 Distinguish between acclimation by individual animals to adverse conditions and evolutionary responses of species to adaptive pressures imposed by environmental change.
5 Critically evaluate experimental design and data generated by appropriate laboratory experiments

Learning Outcomes of Assessments

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

Exam	1	2	3	4	
Scientific interpretation	1	5			
Practical report	1	2	3	4	5

Outline Syllabus

Evolutionary physiology. Ecothermy and endothermy. Behavioral thermoregulation. Life in arid environments: Invertebrate and vertebrate adaptations to desert and arctic ecosystems. The interrelationship of heat and water stress. Thermal adaptation and acclimation. The physiology of fasting and hibernation. Chronobiology.

Learning Activities

Lectures and a practical session. Students are required to produce and present a poster.

References

Course Material	Book
Author	Chown, S.L. and Nicholson, S.
Publishing Year	2004
Title	Insect Physiological Ecology.
Subtitle	

Edition	
Publisher	Oxford University Press.
ISBN	9780198515494

Course Material	Book
Author	Eckert, R. et al.
Publishing Year	2002
Title	Animal Physiology: Mechanisms and Adaptations.
Subtitle	
Edition	5th.
Publisher	Freeman.
ISBN	0716738635

Course Material	Book
Author	Wilmer, P. et al.
Publishing Year	2004
Title	Environmental Physiology of Animals.
Subtitle	
Edition	2nd.
Publisher	Blackwell.
ISBN	1405107243

Course Material	Book
Author	Withers, P.C.
Publishing Year	2000
Title	Comparative Animal Physiology.
Subtitle	
Edition	2nd.
Publisher	Saunders.
ISBN	0127604510

Course Material	Book
Author	Karasov, W. H. and Martinez del Rio, C.
Publishing Year	2007
Title	Physiological Ecology: How Animals Process Energy, Nutrients, and Toxins
Subtitle	
Edition	1st
Publisher	Princeton University Press
ISBN	9780691074535

Notes

Building on knowledge of fundamental mechanisms and the diversity of physiological strategies adopted by various species to given selective pressures, this module highlights current studies investigating adaptive responses of individual animals to

environmental extremes.