

Liverpool John Moores University

Title: ENVIRONMENTAL PHYSIOLOGY
Status: Definitive
Code: **6010SPOSCI** (114291)
Version Start Date: 01-08-2011

Owning School/Faculty: Sports Sciences
Teaching School/Faculty: Sports Sciences

Team	Leader
Ben Edwards	Y

Academic Level: FHEQ6
Credit Value: 24.00
Total Delivered Hours: 48.00
Total Learning Hours: 240
Private Study: 192

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	40.000
Practical	6.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS3	Essay style	50.0	2.00
Presentation	AS2		25.0	
Essay	AS1		25.0	

Aims

This module critically examines the effect of variations in temperature, pressure, microgravity and pollution on performance and cardiovascular responses during exercise. In addition the effects that circadian rhythms and their disturbance, menstrual cycle and sleep deprivation have on exercise performance are critically explored.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically appraise the characteristics and methods of analysing various types of biological cycles.
- 2 Critically appraise the process whereby biological cycles may affect performance.
- 3 Critically appraise the interaction between exercise and pregnancy.
- 4 Critically evaluate cardiovascular control mechanisms and the effect of temperature (hot or cold), dehydration and altitude on cardiovascular responses during exercise.
- 5 Develop strategies to acclimatise athletes to new environmental stressors and devise appropriate strategies for athletes to perform to their potential when crossing time zones, and for individuals to cope with night work.
- 6 Critically evaluate the effects of sleep deprivation on physical and mental performance.

Learning Outcomes of Assessments

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

EXAM	1	2	3	4	5	6
Poster presentation	1	2	5	6		
Essay	4	5				

Outline Syllabus

Introduction to the study and analysis of biological rhythms.
Circadian rhythms in exercise performance.
Rhythm disturbances: Jet-lag and shiftwork.
Menstrual cycle, pregnancy and athletic performance.
Sleep deprivation and performance
Cardiovascular control mechanisms during exercise
Thermoregulation and cardiovascular adjustments in heat.
Dehydration and fluid replacement.
Mechanisms of fatigue in the heat.
Exercise responses in the cold and at altitude.
Seasonal variation.

Learning Activities

The learning activities revolve around a series of lectures that critically explore the various topics within the module and direct the student to relevant sources of extended reading. The lectures will be supplemented by seminars and tutorials and a series of practical demonstrations that include data collection in the laboratory.

References

Course Material	Book
Author	Case, R.M. & Waterhouse, J.M.
Publishing Year	1994
Title	Human Physiology: age, stress, and the environment.
Subtitle	
Edition	
Publisher	Oxford University Press
ISBN	

Course Material	Book
Author	McArdle, W.D., Katch, F.I. & Katch, V.L.
Publishing Year	2001
Title	Exercise Physiology: Energy, Nutrition and Performance.
Subtitle	
Edition	
Publisher	Lippincott, Williams & Wilkins
ISBN	

Course Material	Book
Author	Reilly, T., Atkinson, G and Waterhouse, J
Publishing Year	1997
Title	Human Circadian Rhythms and Exercise
Subtitle	
Edition	
Publisher	Oxford University Press
ISBN	

Course Material	Book
Author	Rowell, L.B.
Publishing Year	1993
Title	Human Cardiovascular Control
Subtitle	
Edition	
Publisher	Oxford University Press
ISBN	

Course Material	Book
Author	Reilly, T. and Waterhouse, J.
Publishing Year	2005
Title	Sport, exercise and environmental physiology
Subtitle	
Edition	
Publisher	Elsevier Churchill Livingstone
ISBN	0443073589

Notes

This module explores environmental topics within Physiology and the effects of various environmental challenges on athletic and exercise performance. Critical understanding of these topics is evidenced through the three diverse assessment tasks.