

Liverpool John Moores University

Title: TECHNICAL TRAINING (PHYSIOLOGY)
Status: Definitive
Code: **7021SPOSCI** (114323)
Version Start Date: 01-08-2013

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

Team	Leader
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Academic Level: FHEQ7 **Credit Value:** 20.00 **Total Delivered Hours:** 33.00
Total Learning Hours: 200 **Private Study:** 167

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	6.000
Practical	27.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Experimental laboratory report	100.0	

Aims

The aim of this module is to provide students with extensive practical training in

fundamental exercise physiology measurements, including aerobic capacity, anaerobic capacity, muscle strength and cardiac function. Sessions typically include a lead lecture covering the essential theoretical underpinnings of each method followed by practical training. Student engagement is essential, it is expected that students will take part in both conducting (i.e. experimenter) and performing (i.e. participant) exercise tests. To consolidate knowledge, data collected during the physiological tests is subsequently used in the Quantitative Research Methods module to assist teaching of statistical research methods, including difference testing, regression, reproducibility and sample size estimation.

Learning Outcomes

After completing the module the student should be able to:

- 1 Conduct key laboratory tests of physiological performance encompassing either aerobic and anaerobic capacity, muscle strength or cardiac function
- 2 Assess the reproducibility of physiological measures and perform difference testing using appropriate within- and between-subject designs
- 3 Discuss the underpinning theory and critically evaluate the assumptions and limitations of key physiological performance tests.

Learning Outcomes of Assessments

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

Lab report	1	2	3
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Outline Syllabus

Health and safety and risk assessment

Anaerobic performance (e.g. Wingate cycle ergometry, non-motorised treadmill sprinting)

Skeletal muscle performance (e.g. isometric and isokinetic dynamometry)

Maximum aerobic capacity

Echocardiography

Vascular function

Blood collection and handling.

Exercise biochemistry (e.g. blood metabolites and hormones)

Learning Activities

This module is timetabled in sessions of 3 h per week during semester 1. Sessions include lectures covering the essential theoretical underpinnings of the topic, practical laboratory training and statistics workshops. Student engagement is essential, it is expected that students will take part in either conducting or performing each physiological test. Statistical research methods will be taught using data collected during the prior exercise physiology practical. Each statistics workshop

encompasses a lead lecture covering the theoretical basis of the statistical test followed by a computer practical wherein students will conduct analyses of physiological data collected during the previous session.

References

Course Material	Book
Author	Gore, C.
Publishing Year	2000
Title	Physiological Tests for Elite Athletes
Subtitle	Australian Sports Commission
Edition	1st
Publisher	Human Kinetic Publishers, Champaign, Illinois,
ISBN	736003266

Course Material	Book
Author	Maud, P.J. and Foster,C
Publishing Year	1995
Title	Physiological assessment of human fitness.
Subtitle	
Edition	1st
Publisher	Human Kinetics, Champaign Illonois.
ISBN	087322776X.

Course Material	Book
Author	Eston, R and Reilly, T.
Publishing Year	2001
Title	'Kinanthropometry and Exercise Physiology Laboratory Manual: Tests, procedures and Data
Subtitle	
Edition	2nd
Publisher	Taylor and Francis.
ISBN	0415251869

Course Material	Book
Author	Winter, E.M., Jones, A.M., Davison, R.C.R., Bromley, P.D. and Mercer, T.H.
Publishing Year	2007
Title	Sport and Exercise Physiology Testing Guidelines. BASES guide
Subtitle	Volume I: Sport Testing
Edition	
Publisher	Routledge
ISBN	0415361419

Notes

Lectures covering the essential theoretical underpinnings of physiological testing methods followed by practical training in their use are used, with data collected for analysis in the Research Methods module.