Prifysgol Wrecsam
Wrexham University

Module specification

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Module Code	SES506
Module Title	Physiological Responses to Training & Testing
Level	5
Credit value	20
Faculty	FSLS
HECoS Code	100433
Cost Code	GASP
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
BSc (Hons) Sport & Exercise Science	Core

Breakdown of module hours

Learning and teaching hours	15 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	15 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	**30 hrs**
Placement hours	0 hrs
Guided independent study hours	170 hrs
Module duration (Total hours)	**200 hrs**

Module aims

- Develop practical experience of physiological testing techniques and become fully aware of the safety issues relating to physiological monitoring and prescription of training.
- Examine, quantify and analyse the body's acute responses to sport and exercise and chronic adaptation to training, with reference to the various systems of the body (e.g. cardiovascular, respiratory, metabolic, musculoskeletal and energy systems).
- Demonstrate how physiological knowledge can be used to enhance performance.
- Examine the impact of various nutritional ergogenic aids on performance outcomes.

Module Learning Outcomes

At the end of this module, students will be able to:

1	Demonstrate competency at carrying out a physiological test to assess a client's fitness level.
2	Provide sufficient feedback to a client with regards to their fitness level.
3	Appraise a nutritional ergogenic aid that could be used to enhance sporting performance.
4	Analyse various physiological adaptations seen from a particular type of exercise training.
5	Effectively communicate information to both specialist and non-specialist audiences using social media.

Assessment

Indicative Assessment Tasks:
This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Practical - Students will be observed carrying out a physiological test in the lab on a client as part of a small group and will be asked to provide feedback to the client in real time (1.5 hrs).

Coursework - Students will create two social media posts, one outlining the use, benefits and physiological basis of a nutritional ergogenic aid of their choice, the other outlining a training method and the potential physiological adaptations seen from the training method (1000 words each).

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1 – 2	Practical	1.5 hours	40	N/A
2	3 - 5	Coursework	2000 words	60	N/A

Derogations

N/A

Learning and Teaching Strategies

A blend of lectures, practicals and workshops are the main learning and teaching strategies employed on this module. In line with the University Active Learning Framework, students will be provided with short, pre-recorded content prior to each practical laboratory session which will outline the focus of the practical skills that will be developed. Students will also receive more laboratory practical time in order for their practical skills to be enhanced.

Welsh Elements

The programmes will be delivered through the medium of English. Students are entitled to submit assessments in the medium of Welsh. If students wish to converse in Welsh, they will be assigned a Welsh speaking personal tutor. Students will be sign posted to relevant opportunities via the VLE and MS Teams page.

Indicative Syllabus Outline

- VO_2 max testing
- Body composition
- Lactate and ventilatory threshold testing
- Blood sampling
- Nutritional ergogenic aids
- Strength testing
- Neuromuscular/muscular skeletal adaptations to resistance training
- Cardiovascular adaptations to endurance training
- Metabolic adaptations from endurance and interval style exercise training
- Creating social media posts

Indicative Bibliography

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Kenney, L. W. Wilmore, J. H. Costill, D. L. (2021). *Physiology of Sport and Exercise*. 8th ed. Champaign, IL: Human Kinetics.

Other indicative reading

McArdle, W. Katch, F. I. Katch, V. L. (2023). *Exercise Physiology: Nutrition, Energy and Human Performance.* 9th ed. Philadelphia. Wolters Kluwer Health/ Lippincott Williams & Wilkins.

Davison, R. C. Smith, P. Hopker, J. Price, M. Hettinga, F. Tew, G. Bottoms, L. (2022). *Sport and Exercise Physiology Testing Guidelines: Volume II - Exercise and Clinical Testing The British Association of Sport and Exercise Sciences Guide*. London: Routledge.

Bassett, D. R. Howley, E. T. (1999). Limiting factors for maximum oxygen uptake and determinants of endurance performance. *Medicine & Science in Sports & Exercise*, 32(1), pp. 70-84.

Noakes, T. (2008). How did A V Hill understand the VO_2max and the "plateau phenomenon"? Still no clarity? *British Journal of Sports Medicine*, 42(7), pp. 574-580.

Hellsten, Y. Nyberg, M. (2016). Cardiovascular Adaptations to Exercise Training. *Comprehensive Physiology*, 6(1), pp. 1-32.

Wickham, K. A. Spriet, L. L. (2023). Food for thought: Physiological considerations for nutritional ergogenic efficacy. *Scandinavian Journal of Medicine & Science in Sports*, 34(1), e14307.

Administrative Information

For office use only	
Initial approval date	18/07/2025
With effect from date	08/09/2025
Date and details of revision	
Version number	1.0