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| <b>Module Code:</b> | SPT521 |
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|                      |                                  |
|----------------------|----------------------------------|
| <b>Module Title:</b> | Physiology: Training and Testing |
|----------------------|----------------------------------|

|               |   |                      |    |
|---------------|---|----------------------|----|
| <b>Level:</b> | 5 | <b>Credit Value:</b> | 20 |
|---------------|---|----------------------|----|

|                        |      |                    |        |
|------------------------|------|--------------------|--------|
| <b>Cost Centre(s):</b> | GASP | <b>JACS3 code:</b> | C600   |
|                        |      | <b>HECoS code:</b> | 100433 |

|                |      |                       |               |
|----------------|------|-----------------------|---------------|
| <b>Faculty</b> | FSLs | <b>Module Leader:</b> | Chelsea Moore |
|----------------|------|-----------------------|---------------|

|  |                |
|--|----------------|
| Scheduled learning and teaching hours                                | 30 hrs         |
| Placement tutor support  | 0hrs           |
| Supervised learning eg practical classes, workshops                  | 30 hrs         |
| Project supervision (level 6 projects and dissertation modules only) | 0 hrs          |
| <b>Total contact hours</b>   | <b>30 hrs</b>  |
| Placement / work based learning                                      | <b>0</b>       |
| Guided independent study   | 170 hrs        |
| <b>Module duration (total hours)</b>                                 | <b>200 hrs</b> |

| <b>Programme(s) in which to be offered (not including exit awards)</b> | Core | Option                   |
|--|------|--------------------------|
| BSc (Hons) Football Coaching and the Performance Specialist            | ✓    | <input type="checkbox"/> |
| BSc (Hons) Applied Sport and Exercise Sciences                         | ✓    | <input type="checkbox"/> |
| BSc (Hons) Sport Injury and Rehabilitation (registered SIR502)         | ✓    |                          |

|                       |
|-----------------------|
| <b>Pre-requisites</b> |
| None                  |

|                               |            |               |
|-------------------------------|------------|---------------|
| <b>Office use only</b>        |            |               |
| Initial approval:             | 01/04/2020 | Version no: 1 |
| With effect from:             | 28/09/2020 |               |
| Date and details of revision: |            | Version no:   |

### 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 response 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 ergogenic aids on performance outcomes.

### Module Learning Outcomes - at the end of this module, students will be able to

|   |   |
|---|---|
| 1 | To describe and evaluate the various physiological adaptations associated with different training methods.                    |
| 3 | To be able to plan/design and complete a physiological experiment and produce a coherent physiological report on the results. |
| 3 | To be able to evaluate and analyse physiological test data using various statistical analysis and procedures.                 |
| 4 | To explain and describe the physiological response to various tests and exposure to ergogenic aids.                           |

| <b>Employability Skills<br/>The Wrexham Glyndŵr Graduate</b> | <b>I = included in module content<br/>A = included in module assessment<br/>N/A = not applicable</b> |
|--|--|
| <b>CORE ATTRIBUTES</b>                                       |  |
| Engaged  | A  |
| Creative   | A  |
| Enterprising   | A  |
| Ethical  | A  |
| <b>KEY ATTITUDES</b>   |  |
| Commitment   | I  |
| Curiosity  | A  |
| Resilient  | I  |
| Confidence   | A  |
| Adaptability   | A  |
| <b>PRACTICAL SKILLSETS</b>                                   |  |
| Digital fluency  | A  |

| <b>Employability Skills<br/>The Wrexham Glyndŵr Graduate</b>   | <b>I = included in module content<br/>A = included in module assessment<br/>N/A = not applicable</b> |
|--|--|
| Organisation   | I  |
| Leadership and team working  | A  |
| Critical thinking  | I  |
| Emotional intelligence   | I  |
| Communication  | A  |
| <b>Derogations</b>   |  |
| BSc (Hons) Applied Sport and Exercise:<br><br>Applied Sport and Exercise Sciences students must pass at 40% both elements of assessment. |  |

| <b>Assessment:</b>  |                             |                    |               |
|---|-----------------------------|--------------------|---------------|
| Indicative Assessment Tasks:  |                             |                    |               |
| 1: Students will design their own physiological experiment to be conducted within their seminar classes exploring the effect of an ergogenic aid on performance of which they will produce a report outlining the results   |                             |                    |               |
| 2: Students will complete a 2-hour exam evaluating and describing the various physiological adaptations (muscular, cardiovascular, metabolic) associated with their chosen method of training (endurance, resistance, interval) and determine the principles of training within that particular method. |                             |                    |               |
| Assessment number   | Learning Outcomes to be met | Type of assessment | Weighting (%) |
| 1   | 2-4                         | Report             | 50%           |
| 2   | 1                           | Examination        | 50%           |

| <b>Learning and Teaching Strategies:</b>    |
|---|
| Lectures, practical seminars and workshops. |

| <b>Syllabus outline:</b>   |
|--|
| Principles of training<br>Neuromuscular/muscular skeletal adaptations to strength training<br>Body composition<br>Cardiovascular adaptations to endurance training<br>Metabolic adaptations to exercise<br>VO <sub>2</sub> max testing |

**Syllabus outline:**

Lactate threshold testing  
Blood sampling  
Statistical analysis  
Ergogenic aids

**Indicative Bibliography:****Essential reading**

McArdle, W. D. Katch, F. I. and Katch, V. L. (2015). *Exercise Physiology: Energy, Nutrition & Human Performance*. 8th ed. Philadelphia: Williams and Wilkins.

Whyte, G. P. (2006). *The Physiology of Training*. Edinburgh ; New York : Churchill Livingstone/Elsevier

**Other indicative reading**

Bindera, R. K. Wonisch, M. Corra, U. Cohen-Solal, A. Vanhees, L. Saner, H. Jean-Paul Schmid, J-P. (2008). 'Methodological approach to the first and second lactate threshold in incremental cardiopulmonary exercise testing. *European Journal of Cardiovascular Rehabilitation and Prevention*, Vol.15, No.6, pp. 726-34.

Hackney, A. C. (2019). 'Molecular and Physiological Adaptations to Endurance Training: Scientific Basics and Practical Applications' in Schumann, M. and Ronnestad, B.R. (eds.), *Concurrent Aerobic and Strength Training*. Cham: Springer.

Housh, T. J. Housh, D. J. deVries, H. A. (2016). *Applied Sport and Exercise Physiology With Labs*. 4TH ed. London: Routledge.

Malcnnis, M. J. Gibala, M. J. (2016). 'Physiological adaptations to interval training and the role of exercise intensity'. *The Journal of Physiology*, Vol.595, No. 9, pp.2915-2930.

Tschakert, G. Hofmann, P. (2013). 'High Intensity Interval Training: Methodological and Physiological Aspects'. *International Journal of Sports Physiology and Performance*, Vol 8, No. 6, pp.600-610.

Wilmore, J. H. Costill, D. L. (2004). *Physiology of Sport and Exercise*. 3rd ed. Leeds: Human Kinetics.

Wolinsky, I. Driskell, J. A. (2004). *Nutritional Ergogenic Aids*. 1<sup>st</sup> ed. Taylor and Francis.

