

### MODULE SPECIFICATION FORM

Module Title: Physiological Foundations	Level: 4	Credit Value: 20
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Module code: SPT 403	Cost Centre: GASP	JACS2 code: C600
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Trimester(s) in which to be offered: 1 and 2	With effect from: Sept 2014
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<b>Office use only:</b> To be completed by AQSU:	Date approved: September 2011
	Date revised: September 2014 (to include Sport Mgt programme)
	Version no: 2

Existing/New: Existing	Title of module being replaced (if any):
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Originating Academic area: Sport & Exercise Sciences	Module Leader: Duncan Mascarenhas
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Module duration (contact hours/directed/directed private study): 40/60/100	Status: Core	BSc (Hons) Sport and Exercise Sciences BSc (Hons) Sport Coaching BSc (Hons) Sports Management
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Programme(s) in which to be offered: BSc (Hons) Sport and Exercise Sciences BSc (Hons) Sport Coaching BSc (Hons) Sports Management	Pre-requisites per programme (between levels): None
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<p>Module Aims:</p> <p>This module aims to:</p> <ol style="list-style-type: none"> <li>1. Apply the fundamentals of anatomy and physiology of the human body that are relevant to physical activity;</li> <li>2. Relate aspects of anatomy and physiology to sport and exercise, examining the acute effects of exercise on various systems of the body;</li> <li>3. Introduce basic laboratory techniques</li> </ol>
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## Expected Learning Outcomes

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

Knowledge and Understanding:

1. Demonstrate knowledge of the systems of the human body such as: skeletal, muscular, cardiovascular, respiratory and energy transfer (KS1)
2. Demonstrate an understanding of how the various systems of the body (such as those mentioned above) function in relation to sport and exercise (KS9)
3. Demonstrate basic laboratory techniques

Key skills for employability

1. Written, oral and media communication skills
2. Leadership, team working and networking skills
3. Opportunity, creativity and problem solving skills
4. Information technology skills and digital literacy
5. Information management skills
6. Research skills
7. Intercultural and sustainability skills
8. Career management skills
9. Learning to learn (managing personal and professional development, self management)
10. Numeracy

Assessment: please indicate the type(s) of assessment (eg examination, oral, coursework, project) and the weighting of each (%). ***Details of indicative assessment tasks must be included.***

### Spot Test:

Students will be tested on their knowledge of anatomy and its application to situations within applied sports and exercise sciences. The questions vary in complexity and take various formats, but test the students on a variety of topics including; terminology/anatomical planes and movement patterns; structure and function of the skeleton, classification of bones and joints, bone structure and development; morphology and histology of skeletal, smooth and cardiac muscle, from gross to molecular; mechanisms and types of muscle contraction and how movement is brought about. The spot test will last approximately 60 min. This individual assessment task meets **learning outcomes 1 and 2.**

### Lab Report

Using data collected from a laboratory practical the students will be required to detail the procedures and findings in the form of a scientific laboratory report. The assessed component of this coursework will be completed in small groups and the students individual contributions will be assessed. This lab report meets **learning outcomes 1, 2 and 3.**

Assessment	Learning Outcomes to be met	Type of assessment	Weighting	Duration (if exam)	Word count or equivalent if appropriate
1	1 and 2	Spot Test	50%		60 mins (approx.)
2	1, 2 and 3	Lab Report	50%		2000 words

**Learning and Teaching Strategies:**

This module will involve a series of laboratory practicals which are supported by lectures and where appropriate seminars.

**Syllabus outline:**

- Introduction to terminology/ anatomical planes and movement patterns.
- Structure and function of the skeleton, including joint structure, classification of bones and joints, bone structure and development.
- Morphology and histology of skeletal, smooth and cardiac muscle, from gross to molecular; mechanisms and types of muscle contraction and how movement is brought about.
- The cardiovascular system: anatomy of heart and blood vessels, transport of blood gases; acute response of heart and blood pressure to exercise.
- The respiratory system: lung anatomy, mechanics of breathing, gaseous exchange, control of respiration, lung volumes; acute response to exercise.
- The nervous system as a communications network and the motor unit mechanism; musculoskeletal interaction.
- Energy systems: role of ATP in muscular contraction, cellular processes, sport and the energy continuum, internal respiration
- Endocrine system and the hormonal control of metabolism.
- Introduction to laboratory techniques, safety and report writing.

## **Bibliography**

Essential reading:

Martini, F. H. (2006). *Fundamentals of Anatomy and Physiology*. New Jersey: Prentice Hall.

Wilmore, J. H. and Costill, D. H. (2004). *Physiology of Sport & Exercise*. Champaign, IL: Human Kinetics.

Other indicative reading:

Marieb, E. N. (2010). *Human Anatomy and Physiology*. San Francisco: Benjamin Cummins.

McArdle, W. D. Katch, F. I. and Katch, V. L. (2007) *Exercise Physiology: Energy, Nutrition & Human Performance*. Philadelphia: Williams and Wilkins.

Powers, S.K. and Howley, E.T. (2004). *Exercise Physiology. Theory and Application to Fitness and Performance*. Boston, Mass: McGraw-Hill.

Siegfried, D.R. (2002). *Anatomy and Physiology for Dummies*. New York: Wiley.

Tortora, G.J. and Derrickson, B (2006). *Principles of Anatomy and Physiology*. New York: Wiley College Publishing.

Wirhead, R. (2006). *Athletic ability & the anatomy of motion* (3<sup>rd</sup> ed.). London: Mosby.