

Module Title	Exercise Physiology and Laboratory Testing
Level	5
Reference No. (<i>showing level</i>)	ASC_5_438
Credit Value	20
Student Study Hours	Contact hours: 51 Student-managed learning hours: 149
Pre-requisite learning	Anatomy and Physiology – ASC_4_401 Scientific Skills – ASC_4_402
Co-requisites	
Excluded combinations	None
Module co-ordinator	Katya Mileva
School/Division	Applied Science/Human Science
Short Description	This module will develop the students' knowledge of exercise physiology and a range of the laboratory procedures and skills used in the assessment of athletic populations. Building on the physiological knowledge developed at L4 the module will cover the acute and chronic responses to both high and low intensity exercise. It will also develop the ability to explain the fundamental factors that determine muscle strength and power as well as agility and quickness. It will focus on the responses of the key physiological systems that support exercise performance and the design of training programmes to optimise improvement and minimise/delay fatigue.
Aims	The aims of this module are to develop student knowledge and skills in relation to: <ol style="list-style-type: none"> 1. The acute physiological responses to differing exercise loads. 2. Training practices to create chronic adaptations to physiological systems with the aim of performance improvement 3. Laboratory protocols for the assessment of performance limitation in both high intensity exercise and endurance exercise. 4. Causes of exercise fatigue and strategies to delay / minimise fatiguing effects.
Learning Outcomes	Knowledge and Understanding: <ol style="list-style-type: none"> 1. Explain the acute and chronic physiological adaptations to a range of exercise intensities. 2. Review and select appropriate laboratory methods for the assessment of athletic performance. 3. Examine the impact of training practices in offsetting fatigue and creating performance enhancing physiological adaptations. 4. Review and interpret relevant training and exercise testing methodology theory and literature.
Employability skills	This module will develop a clear understanding and ability to select appropriate training practices and testing methods for the enhancement of athletic performance. These skills are required by those working in the field of strength and conditioning, sports coaching and personal training. The content of this module is aligned with the some of the requirements for recognition by the Register of Exercise Professionals at L2 and 3 and some of the content covered by the United Kingdom Strength and

	Conditioning Association workshops – Planning effective programmes; Plyometrics, agility and speed.
Teaching and learning pattern	Laboratory exercise testing sessions Key Lectures Tutorials Group work
Indicative content	<ul style="list-style-type: none"> • Laboratory exercise testing protocols for the assessment of high intensity performance; muscle function; endurance performance and flexibility. • Acute physiological responses across a range of exercise intensities • Fatigue processes in exercise performance • Chronic physiological adaptations to training interventions with the aim of improving: <ul style="list-style-type: none"> ○ Muscle strength ○ Speed, agility and quickness ○ Endurance ○ High intensity exercise ○ Joint flexibility
Assessment Elements & weightings	<p><i>Coursework 1 (50%):</i> An experimental report based around (a) the assessment of the physiological needs of a selected athlete type in relation to performance demands of the sport and (b) the appropriate modes of exercise testing to evaluate physiological function of the athlete type.</p> <p>Examination (50%)</p>
Indicative Sources (Reading lists)	<p>Core texts:</p> <p>ACSM (2016) <i>ACSM's Essentials of Strength Training and Conditioning. 4th Ed.</i> Philadelphia. Lippincot, Williams and Wilkins</p> <p>Haff. G., & Dumke. C. (2012) <i>Laboratory Manual for Exercise Physiology.</i> Champaign Ill., Human Kinetics Ltd.</p> <p>McArdle W D, Katch F, Katch V. (2014) <i>Exercise Physiology: Energy, nutrition and human performance 8th Ed.</i> Philadelphia. Lippincot, Williams and Wilkins</p> <p>NASM (2009) <i>NASM's Essentials of Sports Performance Training</i> Philadelphia. Lippincot, Williams and Wilkins</p> <p>Additional texts:</p> <p>Bompa. T., and Carrera. M., (2005) <i>Periodization Training for Sports 2nd Ed.</i> Champaign. Ill., Human Kinetics Ltd.</p> <p>Robergs R.A. & Roberts S.O. (1997) <i>Exercise Physiology: Exercise Performance and Clinical Applications</i> Mosby USA</p> <p>Jones. A.M., & Poole. D.C., (2005) <i>Oxygen uptake kinetics in sport exercise and medicine.</i> Routledge. Abingdon.</p>
Attendance	Minimum attendance is 80% of all sessions.