

Module Title:	Exercise Physiology 3
Language of Instruction:	English
Credits:	10
NFQ Level:	8
Module Delivered In	2 programme(s)
Teaching & Learning Strategies:	This module will be delivered as two theory classes of one hour duration and one two-hour long practical laboratory class per week for 12 weeks. The theory classes will include peer-to-peer learning tasks, and discussions of journal articles, alongside powerpoint presentation. Laboratory classes will involve demonstration of laboratory techniques, student lead physiological assessment and experimentation, group data collection, data handling, analyses and presentation, interpretation of physiological data and discussion.
Module Aim:	To provide the student with the scientific knowledge, physiological laboratory skills and experience in preparation of the athlete for performance
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Outline acute and chronic adaptations to various training modes for developing optimal performance and the appropriate application of these to endurance training and team/individual athletes etc.
LO2	Explain the effects of environmental conditions (e.g. altitude, heat, cold, hyperbaric) on human physiology and, in particular, the athlete
LO3	Discuss the problems associated with exercise performance in varying environmental conditions (e.g. altitude, heat, cold, hyperbaric) and formulate recommendations for optimal athletic performance in these conditions
LO4	Critique the role of biological rhythms and sleep in the preparation of athletes for competition, and, discuss hormonal regulation of physiological processes regarding adaptation to exercise/conditions and overtraining syndrome.
LO5	Demonstrate laboratory, data handling, data interpretation and writing skills through the completion of a number of laboratory practical experiments.
Pre-requisite learning	
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
Successful completion of year 3 or equivalent	

Module Content & Assessment

Indicative Content

Biochemical bases for performance

Bioenergetics, Metabolic Adaptations, Metabolic Limitations

Cardiorespiratory bases for performance

Circulatory response, respiratory response, Cardiovascular adaptations, maximal aerobic power and capacity

Neuromuscular bases for performance

Neuromuscular fatigue, factors affecting strength, power and speed performance.

Environmental Physiology and Performance

Altitude, Heat, Cold, Air Pollution Preparing the athlete for performance in the heat/cold, altitude training, and the effects of air pollution on performance

Biological rhythms and performance

Circadian rhythm, sleep, recovery, managing the athlete through travel

Physiology of Training: Effects of Aerobic and Anaerobic Training

Training for Endurance, Training for Anaerobic Events and Team Sports, Training for Strength Power and Speed, Cell signalling and hormonal control of substrate, acute and chronic adaptations to aerobic and anaerobic training

Practical

Determination of lactate threshold, heart rate and oxygen uptake responses to incremental exercise testing, the acute effects of training using lactate threshold training zones, comparison of anaerobic capacity and power, cardiovascular and metabolic responses during maximal anaerobic speed training, neuromuscular fatigue and adaptations to HIIT. Effects of maximal exertion on force and power

Assessment Breakdown	%
Project	40.00%
End of Module Formal Examination	60.00%

Special Regulation

Students must achieve a minimum grade (35%) in both the project and final examination

No Continuous Assessment

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Complete a journal style article detailing a completed laboratory based experimental investigation.	1,5	40.00	Week 11

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	2 hour final	1,2,3,4	60.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	12 Weeks per Stage	2.00
Laboratory	12 Weeks per Stage	2.00
Estimated Learner Hours	15 Weeks per Stage	13.47
Total Hours		250.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_SASPS_B	Bachelor of Science (Honours) in Sport and Exercise Science	7	Mandatory
CW_SASAC_B	Bachelor of Science (Honours) in Strength and Conditioning	7	Mandatory