

Module Title:	Physiology and Cell Biology 1
Language of Instruction:	English
Credits:	10
NFQ Level:	6
Module Delivered In	6 programme(s)
Teaching & Learning Strategies:	The Physiology component of this module will be delivered in three theory classes of one hour duration for 12 weeks and 2 practical hours per week for 12 weeks in semester 1. Lectures will include Power Point presentations, group discussions, and any course-related issue or questions that may arise will be discussed at lectures. Practical classes will be delivered in the Physiology Laboratory as interactive classes focusing on tasks and activities that allow the student explore and measure physiological responses at rest and during exercise, fostering familiarity with good laboratory conduct, patient care, data handling, data analysis and data interpretation skills. The Cell Biology component of this module in Semester 1 will be taught in one theory lecture class per week, lasting an hour each, for 12 weeks. Lectures will include Power Point presentations, and online resources will be accessed as appropriate. Relevant class notes, diagrams and self assessment tools will be also available to the students in Blackboard. Class will be subjected to regular informal testing and peer teaching and learning during class time. Emphasis will be given to case studies linking concepts to realistic situations.
Module Aim:	Physiology: To provide the student with an understanding of the function and control of the cardiovascular and respiratory systems Cell Biology: To impart knowledge of basic cell biology with special emphasis on association between cell structure and function and human disease.
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Explain the physiology behind the cardiovascular and respiratory systems of the body
LO2	Have a broad overview of the context of these organ systems with regard to other modules on their programme
LO3	Describe the rationale behind certain cardiovascular and respiratory investigatory procedures
LO4	Conduct laboratory investigations to examine certain cardiovascular and respiratory functions at rest and during exercise
LO5	Describe the structure and functions of cellular macromolecules, organelles and cells.
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>	
No requirements listed	

Module Content & Assessment

Indicative Content

Physiology Theory

In depth physiology of the cardiac system, examining the functioning of the heart in detail. Detailed physiology of the blood system and how it relates to cardiac and respiratory system. Comprehensive physiology of the respiratory system and how it relates to the cardiac and blood systems.

Physiology Practical

Heart rate monitoring and the acute effect of exercise on heart rate; Cardiac Cycle; Heart and ECG; Heart sounds; Blood Pressure; Heart and Peripheral Circulation; Breathing; Lung Volumes; Mechanics of Ventilation; Cardio-respiratory effects of exercise; Muscle and EMG

Cell Biology Theory

Introduction to the animal cell and homeostasis. Overview of cell chemistry. The cell membrane: structure and function. Other cellular components: overview and function. Introduction to methods of cell communication. Cellular genetic processes.

Assessment Breakdown

	%
Continuous Assessment	80.00%
Practical	20.00%

Special Regulation

Students must achieve a minimum grade of 35% in both the Practical and CA assessment components

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Other	Physiology will involve between 2 and 3 continuous assessments/assignments, which will take place in class as MCQ, short answer, true or false type questions, project or presentation type work (worth 60% in total). Cell Biology will involve one continuous assessment/assignment which will take place in class as MCQ, short answer, true or false type questions, project or presentation type work (worth 20% in total).	1,2,5	80.00	Ongoing

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Practical Assessment to include final practical exam (ECG, BP, Respiratory) +/- laboratory report on acute cardio-respiratory response to exercise	1,3,4	20.00	End-of-Semester

No End of Module Formal Examination

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	4.00
Laboratory	12 Weeks per Stage	2.00
Independent Learning	15 Weeks per Stage	11.87
Total Hours		250.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEBEE_B	Bachelor of Engineering (Honours) in Biomedical Electronics	1	Mandatory
CW_EEBEE_D	Bachelor of Engineering in Biomedical Electronics	1	Mandatory
CW_SASPS_B	Bachelor of Science (Honours) in Sport and Exercise Science	1	Mandatory
CW_SASRA_B	Bachelor of Science (Honours) in Sports Rehabilitation and Athletic Therapy	1	Mandatory
CW_SASAC_B	Bachelor of Science (Honours) in Strength and Conditioning	1	Mandatory
CW_SAPHS_C	Higher Certificate in Science in Physiology and Health Science	1	Mandatory