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| Module Title: | Exercise Physiology 1 |
| Language of Instruction: | English |
| Credits: | 5 |
| NFQ Level: | 6 |
| Module Delivered In | 4 programme(s) |
| Teaching & Learning Strategies: | The module includes both large-group and small-group classes, alongside tutor-directed and self-directed independent student learning. The large group lecture classes will include interactive learning activities and formative assessment tasks such as discussions, quizzes, and case studies. The small group practical classes will provide students with the opportunity to develop their hands-on skills in physiological measurement, along with opportunities to reflect on and discuss the application of theory to practice. Independent student learning time will be used for preparation for classes, review of class materials and activities, and work associated with assessment tasks |
| Module Aim: | To provide students with an understanding of the operation of the muscular system and the systems of energy production in relation to physical exercise and performance |
| Learning Outcomes | |
| <i>On successful completion of this module the learner should be able to:</i> | |
| LO1 | Describe and illustrate the micro anatomy of human skeletal muscle and explain the process of muscular contraction and analyse the factors affecting the generation of force and apply the principles of training and the development of strength |
| LO2 | Explain the processes involved in energy production for physical activity, synthesise and apply the bioenergetic processes to exercise training principles and the control body composition |
| LO3 | Accurately measure, record and interpret the data collected in laboratory measures of exercise and demonstrate an ability to take laboratory numerical data and integrate it into a structured standard laboratory report and construct scientific essays. |
| 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

Anatomy of the muscle and muscular contraction

Gross- and micro-anatomy; sliding filament theory; muscle fibre types

Factors affecting the development of force

Architectural, neural, and mechanical factors affecting force and velocity

Factors affecting maximal endurance capacity

VO₂max & Lactate Threshold physiology, principles and concepts

Physiological adaptations to exercise

General Adaptation Syndrome, EIMD, Neuromuscular and morphological adaptations to training

Energy for Cellular Activity & Bioenergetics

PCR system, glycolytic system, oxidative system

Measuring energy expenditure

Energy expenditure at rest and during exercise; laboratory measurement and estimation; EPOC

Body composition, weight, obesity and exercise

Adipose tissue physiology; Measuring body composition; energy balance

Practical

The practical element will include laboratory testing of physiological variables during rest, submaximal, and maximal exercise testing

Assessment Breakdown

| | % |
|----------------------------------|--------|
| Continuous Assessment | 10.00% |
| Practical | 40.00% |
| End of Module Formal Examination | 50.00% |

Special Regulation

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

Continuous Assessment

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------|--|-------------------|------------|-----------------|
| Other | The Mid term assessment assessment strategy may incorporate MCQ's, essays, presentations, reflective logs, case studies and written reports. | 1 | 10.00 | n/a |

No Project

Practical

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------------------|---|-------------------|------------|-----------------|
| Practical/Skills Evaluation | The practical assessment strategy may incorporate practical skills assessments, presentations and/or written laboratory reports | 3 | 40.00 | Sem 1 End |

End of Module Formal Examination

| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
|-----------------|------------------------|-------------------|------------|-----------------|
| Formal Exam | No Description | 1,2 | 50.00 | 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 | 3.00 |
| Laboratory | 12 Weeks per Stage | 2.00 |
| Estimated Learner Hours | 15 Weeks per Stage | 4.33 |
| Total Hours | | 125.00 |

Module Delivered In

| Programme Code | Programme | Semester | Delivery |
|----------------|---|----------|-----------|
| CW_SASPS_B | Bachelor of Science (Honours) in Sport and Exercise Science | 2 | Mandatory |
| CW_SASRA_B | Bachelor of Science (Honours) in Sports Rehabilitation and Athletic Therapy | 2 | Mandatory |
| CW_SASAC_B | Bachelor of Science (Honours) in Strength and Conditioning | 2 | Mandatory |
| CW_SAPHS_C | Higher Certificate in Science in Physiology and Health Science | 2 | Mandatory |