COURSE OUTLINE

SPX211 Exercise Physiology I

School: School of Health - Sport and Exercise Science

2026 | Trimester 2

UniSC Sunshine Coast
UniSC Moreton Bay

BLENDED LEARNING

Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This course is designed to provide you with an understanding of the physiology of human physical exercise. The course content includes the theoretical and practical components of the acute and adaptive responses of the energy transfer, respiratory, cardiovascular, muscle, nervous and endocrine systems during exercise and the integration of these systems.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Online	2hrs	Week 1	12 times
Laboratory 1 – On Campus	2hrs	Week 1	12 times
Seminar – On Campus	1hr	Week 2	3 times

1.3. Course Topics

Introduction to exercise physiology
Energy transfer and exercise
Measurement of energy transfer
Individual differences and exercise
Pulmonary components and exercise
Gas exchange and transport and exercise
Respiratory system regulation and integration and exercise
Heart and blood pressure and exercise
Cardiovascular system regulation and integration and exercise
Cardiac output and blood distribution and exercise
Muscular system and exercise
Nervous system and exercise
Endocrine system and exercise

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...	GRADUATE QUALITIES MAPPING Completing these tasks successfully will contribute to you becoming...	PROFESSIONAL STANDARD MAPPING * Exercise and Sports Science Australia
1 Explain and differentiate between the function, regulation, and integration of the energy transfer, respiratory, cardiovascular, muscular, neural, and endocrine systems during exercise.	Knowledgeable	2.2.1, 2.2.3, 3.2.1, 3.2.2
2 Identify food sources and integrate the role and function of key macronutrients and micronutrients involved in exercise.	Knowledgeable	11.2.1
3 Apply literature, information, and learning resources from multiple sources to support decision-making in exercise physiology.	Creative and critical thinker Information literacy	2.2.5, 2.2.6, 14.2.3
4 Interpret and discuss exercise physiology research literature using the principles of the scientific method.	Knowledgeable Information literacy	2.2.5, 14.2.3
5 Conduct valid, accurate, and reliable tests and measurements of physiological function during exercise including screening and safety procedures and understand when to cease a test.	Empowered Applying technologies	3.2.3, 3.2.4, 3.2.8, 7.2.2, 7.2.3, 7.2.6, 7.2.7
6 Analyse and interpret results from laboratory experiments in exercise physiology and understand when onward referral is required.	Creative and critical thinker	2.2.5, 3.2.3, 3.2.4, 3.2.5, 4.2.8

* Competencies by Professional Body

CODE	COMPETENCY
EXERCISE AND SPORTS SCIENCE AUSTRALIA	
2.2.1	Integrate knowledge of anatomy, physiology, pathophysiology, and other determinants of health and function and apply these to inform safe and effective movement, physical activity, and exercise-based interventions for individuals and population groups throughout all stages of their life.
2.2.3	Evaluate physiological responses and adaptations to acute and chronic exercise for clients across the full health spectrum.
2.2.5	Evaluate research findings and apply exercise prescription principles to develop recommendations and interventions, including targeted exercise prescription for the purposes of optimising health status, function, recovery, independence, and participation.
2.2.6	Apply clinical, ethical, and evidence-based decision-making to formulate appropriate interventions and recommendations and communicate the expected outcomes.

CODE	COMPETENCY
3.2.1	Describe the function, regulation and interaction of physiological systems relating to exercise.
3.2.2	Describe the individual and integrated physiological responses and adaptations to acute and chronic exercise under normal conditions, in different environments, and by external influences (e.g. ergogenic aids or technologies).
3.2.3	Formulate appropriate assessments and outcome measures relevant to treatment and client goals, and evaluate health status, function, capacity, and progress, to inform clinical reasoning and to monitor the delivery and outcomes of interventions.
3.2.4	Analyse and interpret physiological data obtained during acute exercise, and compare such data between time points, individuals and populations.
3.2.8	Choose and use relevant technology and equipment efficiently, effectively, and safely.
3.2.5	Evaluate and record assessment outcomes in a timely and accurate manner to inform practice and communicate outcomes and relevance to goals effectively to clients and relevant others.
4.2.8	Evaluate effectiveness of interventions and their outcomes including the selection, interpretation, and reporting of outcome measures to inform future practice.
7.2.2	Identify and use the common processes and equipment required to conduct accurate and safe health, physical activity and exercise assessments.
7.2.3	Identify and describe the limitations, contraindications or considerations that may require the modification of assessments and make appropriate adjustments for diverse individuals.
7.2.6	Select, develop and conduct appropriate protocols for safe, effective and culturally sensitive assessments including risk management and risk assessment concepts associated with the health and assessment of exercise science.
7.2.7	Identify the need for guidance or further information from an appropriate health professional and recognise when medical supervision is required before or during an assessment and when to cease a test.
11.2.1	Describe the basic functions of macronutrients and micronutrients, their common sources, and their role in energy balance and health.
14.2.3	Appraise research methods and reports, including statistical results to understand methodological and ethical aspects of research, and integrate this knowledge into all areas of exercise science practice.

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

LFS112 or SPX103

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

This course includes an assessment of a professional competency task deemed necessary to meet the Exercise and Sports Science Australia (ESSA) Professional Standards. Therefore, your attendance and participation in practicals/laboratory's and tutorials is expected. Feedback will be provided to you during each of your classes and will provide you with support and guidance to become competent in the ESSA Professional Standards addressed in this course. For any work that is missed you will need to demonstrate to your course provider that you have covered the required material. This will usually take the form of a detailed summary and reflection of the directed study activities and practical skills for the missed class or placement.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Quiz/zes	Individual	20%	30 minutes per quiz.	Refer to Format	Online Submission
All	2	Practical / Laboratory Skills	Individual	40%	15-20 minutes per task	Refer to Format	In Class
All	3	Examination - Centrally Scheduled	Individual	40%	2 hours.	Exam Period	Online Test (Quiz)

All - Assessment Task 1: Laboratory and Research Quizzes

GOAL:	The Laboratory and Research Quizzes are designed to assess your understanding and application of the theory and practical components from the laboratory classes and associated required reading (including modification of exercise assessments considering cultural safety and sensitivity).
PRODUCT:	Quiz/zes
AUTHORSHIP STATEMENT:	
FORMAT:	Submit in Weeks 4, 8, 12. Multiple choice and or short answer questions.

CRITERIA:

No.		Learning Outcome assessed
1	Demonstrates accurate understanding of physiological systems and their integration during exercise, including the influence of nutrition and cultural considerations on assessment and performance.	1 2 6
2	Applies scientific principles and research evidence to justify exercise physiology decisions and modifications in laboratory-based scenarios.	3 4 6
3	Interprets and analyses laboratory data to evaluate physiological responses to exercise, ensuring validity, reliability, and cultural sensitivity in testing procedures.	1 5 6

GENERIC SKILLS:

All - Assessment Task 2: Practical Skills

GOAL:	Students will complete a series of in-class practical assessments conducted at multiple points throughout the trimester to demonstrate competency in administering a range of exercise tests. This includes submaximal aerobic assessments and other protocols covered during the trimester. Students will be assessed on their ability to perform assessments safely and effectively, identify contraindications, identify if medical supervision is required, interpret client responses during testing, and use results to guide training prescription. The task will also evaluate students' ability to manage risk, recognise adverse signs or symptoms, and demonstrate professional behaviour throughout testing procedures.
PRODUCT:	Practical / Laboratory Skills
AUTHORSHIP STATEMENT:	
FORMAT:	Week 7 & 10
CRITERIA:	

No.		Learning Outcome assessed
1	Performs exercise testing procedures accurately and consistently, demonstrating correct technique, adherence to protocols, and appropriate calibration of equipment.	5
2	Identifies contraindications, monitors client responses, and manages risk effectively during testing, including recognition of adverse signs and symptoms requiring test modification or cessation.	5
3	Demonstrates professional behaviour and communication throughout testing, including clear explanation of procedures, informed consent, and appropriate interpretation and application of test results to guide exercise prescription.	5

GENERIC SKILLS:	

All - Assessment Task 3: Final Exam

GOAL:	The Final Exam is designed to assess your understanding and application of the theory components of the course from the learning materials and required reading from Weeks 1 - 12. A particular focus will be on choosing appropriate exercise assessments, managing risk during assessments, interpreting results of fitness tests and translating results into effective exercise interventions.
PRODUCT:	Examination - Centrally Scheduled
AUTHORSHIP STATEMENT:	
FORMAT:	Multiple choice and or short answer questions.
CRITERIA:	

No.		Learning Outcome assessed
1	Demonstrates comprehensive understanding of physiological systems, nutritional influences, and their integration during exercise, with accurate application to exercise testing and prescription scenarios.	1 2 6
2	Selects and justifies appropriate exercise assessments and interventions using evidence-based reasoning, while identifying and managing risk factors and contraindications.	3 5 6
3	Critically interprets and applies research literature and laboratory data to inform safe, effective, and culturally sensitive exercise physiology practice.	3 4 6

GENERIC SKILLS:	

6.4. Assessment to competency mapping

PROGRAMME DELIVERY MODE	ASSESSMENT TYPE	TITLE	COMPETENCY	TEACHING METHODS
ESSA ACCREDITED EXERCISE PHYSIOLOGIST PROFESSIONAL STANDARDS 2021				
All delivery modes	Examination - Centrally Scheduled	Final Exam	2.2.1	Taught, Practiced, Assessed
			2.2.3	Taught, Practiced, Assessed
			2.2.5	Taught, Practiced, Assessed
			2.2.6	Taught, Practiced, Assessed
			3.2.3	Taught, Practiced, Assessed
			3.2.5	Taught, Assessed
			3.2.8	Taught, Assessed
			4.2.8	Taught, Assessed
	Practical / Laboratory Skills	Practical Skills	2.2.5	Taught, Practiced, Assessed
			3.2.3	Taught, Practiced, Assessed
			3.2.5	Taught, Practiced, Assessed
			3.2.8	Taught, Practiced, Assessed
			4.2.8	Taught, Practiced, Assessed
	Quiz/zes	Laboratory and Research Quizzes	2.2.1	Taught, Practiced, Assessed
			2.2.3	Taught, Practiced, Assessed
			2.2.5	Taught, Practiced, Assessed
			2.2.6	Taught, Practiced, Assessed
			3.2.3	Taught, Assessed
			3.2.5	Taught, Assessed
			3.2.8	Taught, Assessed
			4.2.8	Taught, Assessed
ESSA ACCREDITED EXERCISE SCIENTIST PROFESSIONAL STANDARDS 2020				
All delivery modes	Examination - Centrally Scheduled	Final Exam	3.2.1	Taught, Assessed
			3.2.4	Taught, Assessed
			7.2.3	Taught, Assessed
			7.2.6	Taught, Assessed

PROGRAMME DELIVERY MODE	ASSESSMENT TYPE	TITLE	COMPETENCY	TEACHING METHODS
			7.2.7	Taught, Assessed
			11.2.1	Taught, Assessed
			14.2.3	Taught, Assessed
	Practical / Laboratory Skills	Practical Skills	3.2.4	Taught, Practiced, Assessed
			7.2.2	Taught, Practiced, Assessed
			7.2.3	Taught, Practiced, Assessed
			7.2.6	Taught, Practiced, Assessed
			7.2.7	Taught, Practiced, Assessed
	Quiz/zes	Laboratory and Research Quizzes	3.2.1	Taught, Assessed
			3.2.4	Taught, Practiced, Assessed
			7.2.3	Taught, Assessed
			7.2.6	Taught, Assessed
			7.2.7	Taught, Assessed
			11.2.1	Taught, Assessed
			14.2.3	Taught, Assessed

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	William D. McArdle,Frank I. Katch,Victor L. Katch	2015	Exercise Physiology	n/a	Lippincott Williams & Wilkins

8.2. Specific requirements

This course includes an assessment of a professional competency task deemed necessary to meet the Exercise and Sports Science Australia (ESSA) Professional Standards. Therefore, your attendance and participation in practicals/laboratory's and tutorials is expected. Feedback will be provided to you during each of your classes and will provide you with support and guidance to become competent in the ESSA Professional Standards addressed in this course. For any work that is missed you will need to demonstrate to your course provider that you have covered the required material. This will usually take the form of a detailed summary and reflection of the directed study activities and practical skills for the missed class or placement.

9. How are risks managed in this course?

Risk assessments have been performed for all studio and laboratory classes and a low level of health and safety risk exists. Some risk concerns may include equipment, instruments, and tools; as well as manual handling items within the laboratory. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

Eligibility for Supplementary Assessment Your eligibility for supplementary assessment in a course is dependent of the following conditions applying: The final mark is in the percentage range 47% to 49.4% The course is graded using the Standard Grading scale You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central