COURSE OUTLINE

SPX331 Exercise Physiology II

School: School of Health - Sport and Exercise Science

2026 | Trimester 1

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 provides you with an in-depth understanding of the integrated physiological processes involved during exercise. It builds on the level of knowledge gained in Exercise Physiology I and aims at enhancing your theoretical and practical knowledge of the responses to exercise with various stressors. This course also aims for you to gain experience in reading and interpreting original research articles in exercise physiology. This course will provide you with laboratory experience for the measurement of physiological responses to exercise in research or clinical settings, and as such is essential if you wish to undertake Honours or postgraduate research in the area of Exercise Physiology.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – On-line	2hrs	Week 1	12 times
Laboratory 1 – Face-to-face	2hrs	Week 1	12 times
Tutorial/Workshop 1 – Online zoom session for review. Week 6 and 12	2hrs	Week 6	2 times

1.3. Course Topics

- Cardiovascular physiological principals
- Conducting aerobic assessment
- Interpretation of testing data
- Musculoskeletal physiological principles
- Conducting anaerobic assessment
- Understanding fatigue
- Altitude and exercise
- Exercise and thermal stress

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING *
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	Exercise and Sports Science Australia
1 Evaluate neuromuscular and cardiovascular function at rest and during exercise, including ensuring the proper calibration and functionality of assessment equipment used during evaluations.	Knowledgeable Applying technologies	2.2.1, 2.2.3, 3.2.1, 3.2.3, 3.2.4, 3.2.8, 4.2.1, 7.2.2, 7.2.5, 7.2.6, 7.2.7, 7.2.8
2 Interpret exercise data and critically evaluate contemporary research in exercise physiology.	Creative and critical thinker Information literacy	2.2.5, 3.2.4, 3.2.5, 4.2.1, 4.2.8, 9.2.3, 14.2.3
3 Analyse physiological responses and adaptations to exercise based on intensity, duration, frequency, and environmental conditions.	Knowledgeable	2.2.1, 2.2.3, 2.2.5, 3.2.2, 3.2.3, 4.2.1, 6.2.5
4 Investigate and analyse physiological responses to different exercise modes and training methodologies.	Knowledgeable	2.2.1, 2.2.3, 2.2.5, 3.2.2, 4.2.1, 4.2.10, 4.2.3

* 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.
3.2.1	Describe the function, regulation and interaction of physiological systems relating to exercise.
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.

CODE	COMPETENCY
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).
4.2.1	Select and apply a range of evidence-based tools and methods to prescribe monitor and evaluate exercise load and progress based on the needs of individuals.
4.2.8	Evaluate effectiveness of interventions and their outcomes including the selection, interpretation, and reporting of outcome measures to inform future practice.
4.2.10	Design and deliver evidence-based, exercise-based interventions and apply behavioural strategies that meet the needs and preferences of clients.
4.2.3	Analyse a broad range of exercise modalities and select appropriate exercises and equipment to suit the needs and abilities of clients including consideration of social determinants of health.
6.2.5	Apply evidence-based physical activity and exercise principles affecting growth, development, pregnancy, and ageing.
7.2.2	Identify and use the common processes and equipment required to conduct accurate and safe health, physical activity and exercise assessments.
7.2.5	Describe the principles and rationale for the calibration of equipment in commonly used in assessments and recognise and recalibrate equipment when required.
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.
7.2.8	Analyse, interpret, communicate and record information and results from assessments including the accuracy and limitations of the assessment with the client, and families, carers and other health and exercise professionals where appropriate.
9.2.3	Describe the interaction effects of different physiological systems.
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

SPX211

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

The results of the Sports Science Quiz in Week 3 will provide early feedback on progress within the course.

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	35%	Delivered throughout the trimester	Throughout teaching period (refer to Format)	In Class
All	2	Report	Individual	30%	1.5 hr	Week 7	In Class
All	3	Practical / Laboratory Skills	Individual	35%	20 minutes	Refer to Format	In Class

All - Assessment Task 1: Part A (Online Quizzes) & Part B (In-class Exam)

GOAL:	Students will complete a series of online quizzes (Task 1A) and an in-class exams (Task 1B) to assess their understanding of key concepts covered throughout the trimester. Quizzes will be delivered via Canvas and are designed to encourage consistent engagement with weekly content. The in-class exam will assess students' ability to apply their knowledge of exercise physiology, including exercise prescription, physiological adaptations, and interpretation of assessment results. Together, these tasks evaluate students' ability to integrate theoretical knowledge with evidence-based practice and clinical reasoning relevant to exercise science and exercise physiology contexts.
PRODUCT:	Quiz/zes
AUTHORSHIP STATEMENT:	
FORMAT:	Online quizzes will be submitted during weeks 3, 5, 9, 11, 12. the overall weighting of Task 1A is 15% The in-class exam will be delivered during class time. The overall weighting of Task 1B is 20%.
CRITERIA:	**No.** — **Learning Outcome assessed** 1 — Two recent research articles — 1 3 4 2 — Lab based activities — 2 3 — Learning material — 2
GENERIC SKILLS:	

All - Assessment Task 2: Data analysis and report writing

GOAL:	Students will analyse and interpret VO2 max data. You will be required to produce two graphs and interpret the data from the graphs. An explanation of the physiological mechanisms and comparison with athletic and non-athletic populations is also required.
PRODUCT:	Report
AUTHORSHIP STATEMENT:	
FORMAT:	In-class report
CRITERIA:	

No.		Learning Outcome assessed
1	Depth of sport science research	2
2	Analysis, evaluation and interpretation of research results	2
3	Critical assessment and comparison of current studies.	1

GENERIC SKILLS:	

All - Assessment Task 3: Practical Exam

GOAL:	In this task, students will complete a practical assessment involving the administration of a maximal exercise test with gas exchange analysis. Students will be assessed on their ability to perform all aspects of the testing process, including calibration of testing equipment (e.g., metabolic cart, treadmill), conducting the exercise test from start to finish, interpreting the results (e.g., client exercise capacity) and prescribing exercise based on the interpreted results. Emphasis will be placed on safe and effective practice, professional conduct, and evidence-based decision-making throughout the assessment process.
PRODUCT:	Practical / Laboratory Skills
AUTHORSHIP STATEMENT:	
FORMAT:	Delivered face to face at the conclusion of the teaching period.
CRITERIA:	

No.		Learning Outcome assessed
1	Knowledge and understanding of theoretical and practical principles of exercise physiology pertaining to the materials covered throughout the trimester	1 4

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	Practical / Laboratory Skills	Practical Exam	2.2.1	Taught, Practiced, Assessed
			2.2.3	Taught, Practiced, Assessed
			2.2.5	Taught, Practiced, Assessed
			3.2.3	Taught, Practiced, Assessed

PROGRAMME DELIVERY MODE	ASSESSMENT TYPE	TITLE	COMPETENCY	TEACHING METHODS
			3.2.8	Taught, Practiced, Assessed
	Quiz/zes	Part A (Online Quizzes) & Part B (In-class Exam)	2.2.1	Taught, Practiced, Assessed
			2.2.3	Taught, Practiced, Assessed
			2.2.5	Taught, Practiced, Assessed
			3.2.5	Taught, Practiced, Assessed
			4.2.8	Taught, Practiced, Assessed
	Report	Data analysis and report writing	2.2.1	Taught, Practiced, Assessed
			2.2.3	Taught, Practiced, Assessed
			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
ESSA ACCREDITED EXERCISE SCIENTIST PROFESSIONAL STANDARDS 2020				
All delivery modes	Practical / Laboratory Skills	Practical Exam	3.2.1	Taught, Practiced, Assessed
			3.2.2	Taught, Practiced, Assessed
			3.2.3	Taught, Practiced, Assessed
			3.2.4	Taught, Practiced, Assessed
			4.2.1	Taught, Practiced, Assessed
			4.2.3	Taught, Practiced, Assessed
			4.2.10	Taught, Practiced, Assessed
			6.2.5	Taught, Practiced, Assessed
			7.2.2	Taught, Practiced, Assessed

PROGRAMME DELIVERY MODE	ASSESSMENT TYPE	TITLE	COMPETENCY	TEACHING METHODS
			7.2.5	Taught, Practiced, Assessed
			7.2.6	Taught, Practiced, Assessed
			7.2.7	Taught, Practiced, Assessed
			7.2.8	Taught, Practiced, Assessed
	Quiz/zes	Part A (Online Quizzes) & Part B (In-class Exam)	3.2.2	Taught, Practiced, Assessed
			3.2.4	Taught, Practiced, Assessed
			4.2.1	Taught, Practiced, Assessed
			4.2.3	Taught, Practiced, Assessed
			4.2.10	Taught, Practiced, Assessed
			9.2.3	Taught, Practiced, Assessed
			14.2.3	Taught, Practiced, Assessed
	Report	Data analysis and report writing	3.2.1	Taught, Practiced, Assessed
			3.2.2	Taught, Practiced, Assessed
			3.2.3	Taught, Practiced, Assessed
			3.2.4	Taught, Practiced, Assessed
			4.2.1	Taught, Practiced, Assessed
			4.2.3	Taught, Practiced, Assessed
			4.2.10	Taught, Practiced, Assessed
			6.2.5	Taught, Practiced, Assessed
			7.2.2	Taught, Practiced, Assessed
			7.2.5	Taught, Practiced, Assessed
			7.2.6	Taught, Practiced, Assessed

PROGRAMME DELIVERY MODE	ASSESSMENT TYPE	TITLE	COMPETENCY	TEACHING METHODS
			7.2.7	Taught, Practiced, Assessed
			7.2.8	Taught, Practiced, Assessed
			9.2.3	Taught, Practiced, Assessed
			14.2.3	Taught, Practiced, 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?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety 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

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