



# ESSC12001 *Exercise and Sport Physiology*

## Term 1 - 2024

Profile information current as at 27/07/2024 06:30 pm

All details in this unit profile for ESSC12001 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## General Information

### Overview

This unit examines responses and adaptations of various physiological body systems to exercise. Specifically, you will learn the physiological mechanisms underpinning acute and chronic changes in the metabolic, pulmonary, cardiovascular, endocrine, and neuromuscular systems as a response to exercise. Furthermore, you will learn how physiological function relating to exercise changes across the lifespan and in different environments. You will also develop practical skills in conducting and interpreting laboratory and field tests assessing physiological function, fitness, and performance.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Prerequisites ESSC11001 Physical Activity, Fitness and Health AND ESSC11003 Skill Acquisition and Movement

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

### Offerings For Term 1 - 2024

- Cairns
- Mackay City
- Mixed Mode
- Rockhampton

### Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

### Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

### Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

## Class and Assessment Overview

### Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

#### [Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

#### [Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

#### 1. **Online Test**

Weighting: 20%

#### 2. **On-campus Activity**

Weighting: Pass/Fail

#### 3. **Written Assessment**

Weighting: 40%

#### 4. **Examination**

Weighting: 40%

### Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

## CQUniversity Policies

**All University policies are available on the [CQUniversity Policy site](#).**

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Student evaluations

**Feedback**

Insufficient feedback on progress and performance was provided across the term.

**Recommendation**

It is recommended that improved methods to deliver feedback on student progress in the unit, as well as performance in assessment items, is incorporated into the unit

#### Feedback from Head of Course

**Feedback**

The unit needs to be re-evaluated against updated Exercise and Sports Science Australia standards ahead of the course re-accreditation process in 2024.

**Recommendation**

It is recommended that the unit be reviewed against the updated Exercise and Sports Science Australia standards to remain in line with accreditation requirements

## Unit Learning Outcomes

**On successful completion of this unit, you will be able to:**

1. Explain the individual and integrated changes that occur in different physiological body systems in response to acute and chronic exercise
2. Describe how physiological responses relating to exercise change across the lifespan and in different environments
3. Collect and interpret physiological measurements obtained during laboratory and field exercise tests.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes		
	1	2	3
1 - Online Test - 20%	•	•	
2 - Written Assessment - 40%			•
3 - Examination - 40%	•	•	
4 - On-campus Activity - 0%			•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes		
	1	2	3
1 - Communication	•	•	•
2 - Problem Solving	•	•	•
3 - Critical Thinking	•	•	•
4 - Information Literacy	•	•	•
5 - Team Work			•
6 - Information Technology Competence			•
7 - Cross Cultural Competence			•
8 - Ethical practice			•
9 - Social Innovation			
10 - Aboriginal and Torres Strait Islander Cultures			

## Textbooks and Resources

### Textbooks

ESSC12001

#### Prescribed

##### Exercise Physiology

Edition: 9 (2023)

Authors: McArdle, W., Katch, F., and Katch, V.

Lippincott Williams & Wilkins

ISBN: 9781975217297

Binding: Other

#### Additional Textbook Information

You can use either a printed version or ebook version of the prescribed text.

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Computer
- Microsoft office or similar word processing, spreadsheets and presentation software
- Calculator

## Referencing Style

All submissions for this unit must use the referencing style: [American Psychological Association 7th Edition \(APA 7th edition\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Aaron Scanlan** Unit Coordinator

[a.scanlan@cqu.edu.au](mailto:a.scanlan@cqu.edu.au)

## Schedule

### Week 1 - Module 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Module 1. Pre-exercise screening and metabolism	Adult Pre-Exercise Screening System and Guidelines.	
1.1 Risks of exercise	McArdle, Katch, & Katch. (2022).	
1.2 Pre-exercise screening	Exercise Physiology: Nutrition, Energy and Human Performance	
1.3 Energy transfer during exercise	(9th ed.). New York, NY: Lippincott Williams & Wilkins.	
1.4 Anaerobic energy systems	Chapters 5, 6, and 8.	
1.5 Aerobic energy systems		
1.6 Macronutrient metabolism		

**Online quiz 1** opens at 12:00 pm AEST on Wednesday 13 March

### Week 2 - Module 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
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## Module 2. Pulmonary and cardiovascular responses to exercise

- 2.1 Pulmonary system physiology
- 2.2 Pulmonary system responses to exercise
- 2.3 Cardiovascular system physiology
- 2.4 Cardiovascular system responses to exercise

McArdle, Katch, & Katch. (2022). *Exercise Physiology: Nutrition, Energy and Human Performance* (9th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 12-17.

**Online quiz 2** opens at 12:00 pm AEST on Wednesday 13 March

### Week 3 - Module 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
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## Module 3. Endocrine and other systemic responses to exercise

- 3.1 Endocrine system physiology
- 3.2 Endocrine system responses to exercise
- 3.3 Exercise and the immune system
- 3.4 Acid-base regulation during exercise
- 3.5 Fatigue during exercise

McArdle, Katch, & Katch. (2022). *Exercise Physiology: Nutrition, Energy and Human Performance* (9th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 14, 19, and 20.

**Online quiz 3** opens at 12:00 pm AEST on Wednesday 20 March

### Week 4 - Module 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Module 4. Exercise responses in different environments and across the lifespan

- 4.1 Exercise responses to altitude
- 4.2 Exercise responses to heat and cold
- 4.3 Exercise considerations in children
- 4.4 Exercise considerations with aging

McArdle, Katch, & Katch. (2022). *Exercise Physiology: Nutrition, Energy and Human Performance* (9th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 24, 25, and 31.

**Online quiz 4** opens at 12:00 pm AEST on Wednesday 27 March

### Week 5 - Module 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Module 5. Training concepts, programming, and adaptations

- 5.1 Oxygen uptake kinetics
- 5.2 Physiological thresholds
- 5.3 Exercise training principles
- 5.4 Programming for aerobic exercise
- 5.5 Adaptations to aerobic exercise

McArdle, Katch, & Katch. (2022). *Exercise Physiology: Nutrition, Energy and Human Performance* (9th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 7, 14, and 21.

**Online quiz 5** opens at 12:00 pm AEST on Wednesday 3 April

### Vacation Week - residential schools - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
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No lecture

**Residential school** at the Mackay City campus from Tuesday 9 April 9:00 am to Wednesday 10 April 1:30 pm AEST

#### Week 6 - residential schools - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		Residential school at the Rockhampton North campus from Tuesday 16 April 9:00 am to Wednesday 17 April 1:30 pm AEST

#### Week 7 - residential schools - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		Residential school at Cairns Basketball from Tuesday 23 April 9:00 am to Wednesday 24 April 1:30 pm AEST

#### Week 8 - review - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Review lecture 1. Summary of major topics 2. Issues and tips for practical workbook 3. Student questions and needs		<b>Online quizzes</b> Due: Week 8 Friday (3 May 2024) 5:00 pm AEST

#### Week 9 - self-directed study - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		

#### Week 10 - exam preparation - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Exam preparation lecture 1. Review of practice exam questions 2. Exam preparation and tips 3. Student questions and needs		

#### Week 11 - Self-directed study - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		<b>Practical workbook</b> Due: Week 11 Friday (24 May 2024) 5:00 pm AEST

#### Week 12 - Self-directed study - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		

#### Review/Exam Week - 03 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
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#### Exam Week - 10 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
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## Term Specific Information

### Residential schools

This unit includes compulsory on-campus practical activities. You must attend one of the residential schools from the three options in different locations outlined below.

**Mackay:** Students enrolled on-campus in Mackay are required to attend the residential school scheduled on the Mackay City Campus (Building 4, Exercise and Sport Sciences Laboratories) on Tuesday 9 April and Wednesday 10 April. Mixed-mode students who reside in the Mackay region or who would prefer the option in Mackay can attend this residential school, but should seek approval from the Unit Coordinator prior to registration. Please see the CQUniversity Handbook and the unit Moodle site for up-to-date information.

**Rockhampton:** Students enrolled on-campus in Rockhampton or via mixed-mode are required to attend the residential school scheduled on the Rockhampton North Campus (Building 81, Exercise and Sport Sciences Laboratories) on Tuesday 16 April and Wednesday 17 April. On-campus Mackay and Cairns students who would prefer the option in Rockhampton can attend this residential school, but should seek approval from the Unit Coordinator prior to registration. Please see the CQUniversity Handbook and the unit Moodle site for up-to-date information.

**Cairns:** Students enrolled on-campus in Cairns are required to attend the residential school scheduled in Cairns (Exercise and Sport Sciences Laboratories located at the Cairns Basketball Association Headquarters) on Tuesday 23 April and Wednesday 24 April. Mixed-mode students who reside in the Cairns region or who would prefer the option in Cairns can attend this residential school, but should seek approval from the Unit Coordinator prior to registration. Please see the CQUniversity Handbook and the unit Moodle site for up-to-date information.

## Assessment Tasks

### 1 Online quizzes

#### Assessment Type

Online Test

#### Task Description

You will be required to complete five online quizzes, with a separate quiz developed for each module. Online quiz 1 will assess knowledge of the content covered in module 1; online quiz 2 will assess knowledge of the content covered in module 1; online quiz 3 will assess knowledge of the content covered in module 3; online quiz 4 will assess knowledge of the content covered in module 4; and online quiz 5 will assess knowledge of the content covered in module 5. Each online quiz will consist of 15 randomly-selected questions from a wider bank of 30 questions. Questions will be relevantly distributed across all topics covered in each module.

Each online quiz will open at 12:00 pm AEST on Wednesday following the scheduled lecture for the corresponding module and all online quizzes will close at the same time in week 8 (Friday 3 May 5:00 pm AEST). You will have a 25-minute time limit to complete each online quiz upon commencing. Questions will be in multiple-choice and fill-in-the-blank formats.

You must log onto Moodle after each online quiz is opened and complete all online quizzes before the closing time. You can only attempt each online quiz once and each must be completed in a single session. Online quizzes should be completed on a computer, as attempting them on a smartphone can result in your session being ended in the event of a phone call or notification. You cannot save your answers and return to online quizzes at a later time. In the absence of an approved extension, there



will be no late submissions allowed for any of the online quizzes.

The use of generative AI is not allowed for this assessment and each online quiz must be completed individually by each student.

**Assessment Due Date**

Week 8 Friday (3 May 2024) 5:00 pm AEST

In the absence of an approved extension, no attempts after the due date will be permitted and a score of zero will be awarded.

**Return Date to Students**

Week 8 Friday (3 May 2024)

You will receive the overall result for each online quiz upon completion; however, you will see detailed feedback regarding the correct answers for each question in each online quiz upon their closure.

**Weighting**

20%

**Assessment Criteria**

Each online quiz will have an equal contribution to your overall unit grade. Together, the five online quizzes will comprise 20% of your overall grade.

There will be 15 questions per online quiz, with each question allocated 1 mark. Each question in each online quiz will be graded as correct or incorrect.

For questions with fill-in-the-blank responses, you should take care to ensure accurate spelling (Australian English) and correct grammar are used given answers are spelling- and grammar-sensitive.

**Referencing Style**

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

**Submission**

Online

**Submission Instructions**

Attempting and submitting each online quiz is performed via the unit Moodle site. You are required to complete each online quiz within the specified times that they are open. Online quizzes should be completed on a computer, as attempting them on a smartphone can result in your session being ended in the event of a phone call or notification.

**Learning Outcomes Assessed**

- Explain the individual and integrated changes that occur in different physiological body systems in response to acute and chronic exercise
- Describe how physiological responses relating to exercise change across the lifespan and in different environments

## 2 Attendance and participation at residential school

**Assessment Type**

On-campus Activity

**Task Description**

This assessment involves compulsory attendance and participation in the on-campus practical activities involved in the unit. You are required to attend and participate in one of the scheduled residential schools. Different residential school options are available to attend. Further details regarding these residential schools can be found in the Term Specific Information section of this Unit Profile, on the unit Moodle site, or via the CQUniversity Handbook.

**Assessment Due Date**

You will successfully complete this assessment item following attendance and participation at your residential school.

**Return Date to Students**

You will immediately pass this assessment following attendance and participation at your residential school.

**Weighting**

Pass/Fail

**Minimum mark or grade**

You must pass this assessment item to pass the unit overall.

**Assessment Criteria**

Attendance at a residential school with sufficient participation will result in a passing grade for this assessment. Failure to attend and adequately participate in a residential school may result in failing this assessment item, and being unable to pass this unit. Attendance for all practical activities will be assessed through attendance records documented by staff managing the sessions.

If you miss any part of the residential school without an approved reason, there will not be an opportunity to simply catch up at any time. The Assessment Policy and Procedure (Higher Education Coursework) outlines acceptable reasons for adjusting assessment. If you do not attend part of the residential school and provide a valid reason with supporting documentation, then an attempt to make alternate arrangements will be made in consultation with the Unit Coordinator.

**Referencing Style**

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

**Submission**

Offline

**Submission Instructions**

Attendance and participation will involve physical completion of practical activities. No documentation is required to be submitted.

**Learning Outcomes Assessed**

- Collect and interpret physiological measurements obtained during laboratory and field exercise tests.

### 3 Practical workbook

**Assessment Type**

Written Assessment

**Task Description**

When completing the practical activities at your residential school in this unit, you will be required to complete a series of tasks involving physiological measurement.

You will need to document the completion of practical activities by filling out a practical workbook available on the unit Moodle site.

The practical workbook will require you to physically complete the practical activities, record collected data for various tasks, perform calculations with collected data, interpret and critically analyse your findings, and answer relevant questions.

The use of generative AI is not allowed for this assessment. The assessment must be completed individually by each student.

**Assessment Due Date**

Week 11 Friday (24 May 2024) 5:00 pm AEST

In the absence of an approved extension, any submissions received after the due date will incur penalties in accordance with CQUniversity Assessment Policy and Procedure (Higher Education Coursework).

**Return Date to Students**

Review/Exam Week Wednesday (5 June 2024)

Grades and feedback for the practical workbook will be made available on the unit Moodle site no later than the set return date and prior to the final exam being scheduled.

**Weighting**

40%

**Assessment Criteria**

The practical workbook is designed to evaluate your ability to use relevant equipment, collect physiological and performance data, and using your developed knowledge to interpret and apply findings. Marks will be allocated to the different activities completed for the following: recording of collected data, presentation of graphical information, analyses using collected data, responses to questions, written interpretation and application of results, and referencing. The practical workbook will be graded out of 400 marks equally divided into the following practical sessions:

1. Pre-exercise screening, fitness assessment, and anthropometry (80 marks)
2. Aerobic metabolism and substrate utilisation during exercise (80 marks)
3. Assessing cardiopulmonary function with spirometry and electrocardiography (80 marks)
4. Thermoregulatory responses to exercise (80 marks)
5. High-performance testing for anaerobic and aerobic fitness (80 marks)

### **Referencing Style**

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

### **Submission**

Online

### **Submission Instructions**

You are required to submit a completed copy of the practical workbook as a .doc or .docx file on the unit Moodle site. You may also submit supplementary documents showing your calculations for relevant practical tasks as .xls, .xlsx, or image files. All submissions are to be completed individually.

### **Learning Outcomes Assessed**

- Collect and interpret physiological measurements obtained during laboratory and field exercise tests.

## **Examination**

### **Outline**

Complete an invigilated examination.

### **Date**

During the examination period at a CQUniversity examination centre.

### **Weighting**

40%

### **Length**

180 minutes

### **Exam Conditions**

Closed Book.

### **Materials**

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

Calculator - non-programmable, no text retrieval, silent only

## Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

### What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

### Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

### Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

### What can you do to act with integrity?



#### Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



#### Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



#### Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem