



# **PSIO12006 *Functional Anatomy and Biomechanics***

## **Term 1 - 2024**

Profile information current as at 29/07/2024 03:36 pm

All details in this unit profile for PSIO12006 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.

## Corrections

### **Unit Profile Correction added on 16-02-24**

The correct Module/Topic and Chapter descriptions for weeks 1 and 2 should read as follows:

Week 1: Module/Topic Unit Overview Introduction of biomechanics

Reading Week 1: Chapter 1 (Neumann, 2017)

Week 2: Module/Topic Biomechanics of bone and cartilage Biomechanics of skeletal muscle and tendon

Reading Week 2: Chapters 2 and 3 (Neumann, 2017)

## General Information

### Overview

The unit will build upon your existing knowledge of musculoskeletal anatomy and physiology. You will develop further skills in qualitative and quantitative assessment of human movement in order to better understand musculoskeletal injury mechanisms and rehabilitation strategies.

### 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

To enrol in this unit you must be enrolled in the CB85 Course and meet the following pre-requisites and co-requisites:

Prerequisites: BMSC11007 Medical Anatomy and Physiology 1 BMSC11008 Medical Anatomy and Physiology 2

PSIO11003 Foundations of Physiotherapy Practice 2 Co-requisite: PSIO12001 Musculoskeletal Physiotherapy 1

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

- Bundaberg
- 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).

### 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. **In-class Test(s)**

Weighting: 20%

#### 2. **Practical Assessment**

Weighting: 30%

#### 3. **In-class Test(s)**

Weighting: 50%

#### 4. **On-campus Activity**

Weighting: Pass/Fail

### 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](#).

## Unit Learning Outcomes

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

1. Demonstrate sound knowledge of structural and functional anatomy in the context of human movement, injury and rehabilitation.
2. Explain and interpret key biomechanical principles and measurement techniques in the context of human movement, injury and rehabilitation.
3. Select, perform and interpret qualitative and/or quantitative assessments of functional anatomy and applied biomechanics relevant to physiotherapy practice.
4. Demonstrate acceptable professional and ethical behaviours consistent with a physiotherapy practitioner and community leader.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - In-class Test(s) - 20%	•	•		
2 - Practical Assessment - 30%			•	•
3 - In-class Test(s) - 50%	•	•		
4 - On-campus Activity - 0%				•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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

PSIO12006

#### Prescribed

#### **Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation**

Edition: 3rd (2017)

Authors: Donald A. Neumann

Elsevier

St. Louis , USA

ISBN: 978-0-323-28753-1

Binding: Hardcover

#### Additional Textbook Information

Paper copies of this text are available at a reduced price at the CQUni Bookshop here: <http://bookshop.cqu.edu.au>

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

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

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

## 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

**Steven Obst** Unit Coordinator

[s.obst@cqu.edu.au](mailto:s.obst@cqu.edu.au)

## Schedule

### Week 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of bone and cartilage Biomechanics of skeletal muscle and tendon	Chapters 2 and 3 (Neumann, 2017)	

### Week 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of joints Biomechanics of the hip	Chapters 2 and 12 (Neumann, 2017)	

### Week 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of joints Biomechanics of the hip	Chapters 2 and 12 (Neumann, 2017)	

<b>Week 4 - 25 Mar 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Biomechanics of the knee	Chapters 13 (Neumann, 2017)	
<b>Week 5 - 01 Apr 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Biomechanics of the foot and ankle	Chapter 14 (Neumann, 2017)	
<b>Vacation Week - 08 Apr 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
<b>Week 6 - 15 Apr 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Biomechanics of walking (Part 1): Gait cycle, joint kinematics Biomechanics of walking (Part 2): Joint kinetics, muscle activation	Chapters 15 and 16 (Neumann, 2017)	<b>MID-TERM TEST (ONLINE)</b> Due: Week 6 Tuesday (16 Apr 2024) 8:00 am AEST
<b>Week 7 - 22 Apr 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Biomechanics of the spine (Part 1): Joints and lifting	Chapters 9 and 10 (Neumann, 2017)	
<b>Week 8 - 29 Apr 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Biomechanics of the spine (Part 2): Musculature	Chapters 9 and 10 (Neumann, 2017)	
<b>Week 9 - 06 May 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Biomechanics of the shoulder	Chapter 5 (Neumann, 2017)	
<b>Week 10 - 13 May 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Biomechanics of the elbow and forearm Biomechanics of the wrist and hand	Chapters 6, 7 and 8 (Neumann, 2017)	
<b>Week 11 - 20 May 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Revision and assessment preparation	N/A	<b>END-TERM TEST (ON CAMPUS)</b> Due: Week 11 Wednesday (22 May 2024) 12:00 pm AEST
<b>Week 12 - 27 May 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Revision and assessment preparation	N/A	
<b>Review/Exam Week - 03 Jun 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Assessment	N/A	
<b>Exam Week - 10 Jun 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Assessment	N/A	

## Assessment Tasks

# 1 MID-TERM TEST (ONLINE)

## Assessment Type

In-class Test(s)

## Task Description

The Mid-Term Test is a 1.5 hour (90 minutes) open book online test delivered via Moodle. You do not need to be on campus to complete the test - you can complete the assessment on your home computer or campus computer. The Mid-Term Test will examine all content covered from weeks 1 to 5, inclusive, including all lectures, practicals and required readings. The Mid-Term Test will only include Multiple Choice and True/False questions.

## Assessment Due Date

Week 6 Tuesday (16 Apr 2024) 8:00 am AEST

Mid-Term Test (online) via Moodle: opens at 8:00am and closes at 8:00pm

## Return Date to Students

Results will be accessible on Moodle within two weeks of the submission date.

## Weighting

20%

## Assessment Criteria

All questions will be marked numerically and an overall percentage mark will be awarded.

## Referencing Style

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

## Submission

Online

## Learning Outcomes Assessed

- Demonstrate sound knowledge of structural and functional anatomy in the context of human movement, injury and rehabilitation.
- Explain and interpret key biomechanical principles and measurement techniques in the context of human movement, injury and rehabilitation.

# 2 SURFACE ANATOMY AND MUSCLE TESTING (ON CAMPUS)

## Assessment Type

Practical Assessment

## Task Description

The Practical Assessment will evaluate your theoretical knowledge and practical application of structural and functional anatomy. The Practical Assessment will be 30 minutes in duration (i.e. 10 min preparation time and 10 min per station). The Surface Anatomy component (50% of total assessment task mark) will assess your ability to perform a safe and accurate surface anatomy palpation assessment of ten (10) anatomical structures. The Muscle Testing component (50% of total assessment task mark) will assess your ability to conduct a safe and accurate clinical assessment of muscle function (e.g. activation, strength, endurance etc.) of up to two (2) selected muscle groups using standardised procedures and equipment. During the preparation time you will be required to answer a series of questions that relate to each clinical station. You are required to submit your responses to these questions at the completion of your assessment time. These questions will be marked at the end of assessment and will contribute to your rubric mark for Anatomical and Biomechanical Knowledge.

During each clinical station you may also have to:

- Demonstrate theoretical knowledge of structural and functional anatomy, including, but not limited to, the following topics:
  - Skeletal muscle names, origins, insertions, actions and innervations.
  - Ligament names, origins, insertions, functions and mechanisms of injury.
  - Peripheral nervous system anatomy, including peripheral nerve paths, spinal root contributions, and motor and sensory innervation zones/patterns.
  - Bone and joint structure and function, including knowledge of joint classification systems, normal and abnormal kinematics, and mechanisms of injury.
- Identify and act upon any precautions and/or contraindications to a clinical assessment.
- Demonstrate knowledge and clinical reasoning in the selection of a clinical assessment.
- Demonstrate clear, effective and thorough communication.



- Demonstrate safe and effective application of a clinical assessment.
- Explain and interpret the findings of a clinical assessment.

All material relevant to musculoskeletal anatomy and biomechanics from any pre-requisite and/or co-requisite unit is also examinable in the Practical Assessment. You need to be appropriately attired in your full clinical uniform for the assessment. If you are required to be a 'simulated patient' for another student's assessment, please bring additional clothes suitable for a clinical assessment.

### **Assessment Due Date**

The Practical Assessment will be scheduled during either the Review/Exam Week or Exam Week.

### **Return Date to Students**

Final marks will be made available on Moodle within two weeks of completion of the assessment.

### **Weighting**

30%

### **Assessment Criteria**

The assessment rubric for this assessment task is based on the Australian Standards for Physiotherapy, the Accreditation Standard set by the Australian Physiotherapy Council and the Assessment of Physiotherapy Practice Instrument. These quality frameworks are mapped against the CQUniversity Graduate Attributes, and are intended to give a holistic understanding of standards expected for the assessment task.

A detailed marking criteria sheet will be available on the unit Moodle site, and will include the following rubric categories and weightings:

- Safety and Risk Management (PASS/FAIL)
- Communication (25%)
- Selection and application of assessment (45%)
- Anatomical and biomechanical knowledge (30%)

**Late Arrivals:** You should aim to arrive at least 15-minutes prior to the official assessment commencement time. In the extraordinary circumstance that you are late you will be permitted late entry to your assessment of up to 10 minutes after the official assessment commencement time. The period of lateness will be deducted from your overall assessment time. If you are denied access to the assessment due to lateness (i.e. arriving beyond the permitted late entry period), you should make an online application for deferred assessment (which may or may not be granted in line with CQU policy). If your application for deferred assessment is denied, you will receive a score of zero percent (0%) for your assessment item.

### **Referencing Style**

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

### **Submission**

No submission method provided.

### **Learning Outcomes Assessed**

- Select, perform and interpret qualitative and/or quantitative assessments of functional anatomy and applied biomechanics relevant to physiotherapy practice.
- Demonstrate acceptable professional and ethical behaviours consistent with a physiotherapy practitioner and community leader.

## **3 END-TERM TEST (ON CAMPUS)**

### **Assessment Type**

In-class Test(s)

### **Task Description**

The End-Term Test is a 2.5 hour (150 minutes) closed book and paper-based written assessment that will be held on-campus (Bundaberg and Rockhampton campuses only). The test will examine all content covered during the term, including lectures, practicals and required readings. Access to books, notes, websites, and the use of other electronic devices, are prohibited during the test. The assessment will include a combination of True/False, Multiple Choice and Short Answer questions. These questions may require you to draw and/or interpret images (e.g. figures, photos, diagrams etc.), clinical scenarios, and/or other problems to answer questions that assess your theoretical and practical knowledge of functional anatomy and biomechanics.

**Assessment Due Date**

Week 11 Wednesday (22 May 2024) 12:00 pm AEST

**Return Date to Students**

Final marks will be made available on Moodle within two weeks of completion of the assessment.

**Weighting**

50%

**Minimum mark or grade**

A minimum mark of 50% is required to pass this assessment task.

**Assessment Criteria**

The End-Term Test will be marked manually to provide a overall numerical score and percentage mark for the assessment task.

Late Arrivals: You should aim to arrive at least 15-minutes prior to the official assessment commencement time. In the extraordinary circumstance that you are late you will be permitted late entry to your assessment of up to 10 minutes after the official assessment commencement time. The period of lateness will be deducted from your overall assessment time. If you are denied access to the assessment due to lateness (i.e. arriving beyond the permitted late entry period), you should make an online application for deferred assessment (which may or may not be granted in line with CQU policy). If your application for deferred assessment is denied, you will receive a score of zero percent (0%) for your assessment item, but may be eligible for a supplementary assessment in line with CQU policy.

**Referencing Style**

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

**Submission**

No submission method provided.

**Learning Outcomes Assessed**

- Demonstrate sound knowledge of structural and functional anatomy in the context of human movement, injury and rehabilitation.
- Explain and interpret key biomechanical principles and measurement techniques in the context of human movement, injury and rehabilitation.

## 4 ATTENDANCE HURDLE (ON CAMPUS)

**Assessment Type**

On-campus Activity

**Task Description**

A minimum attendance of 85% to tutorial/practical sessions is recommended by the Australian Physiotherapy Council. This has been integrated as a requirement into the CB85 Physiotherapy course, therefore a minimum of 85% attendance to tutorial/practical sessions is required for a PASS grade.

The monitoring of attendance will take into consideration legitimate reasons for absences, as are outlined in the Assessment Policy and Procedure (5.21 & 5.22, Pg. 10-11).

When there is a genuine reason for being absent, you must inform the Unit Coordinator as soon as possible. You will be warned by the Unit Coordinator when you reach the 85% threshold.

Please note: It is mandatory that medical certificates or other supporting documentation (e.g., funeral notices) are emailed to the Unit Coordinator within 5-days of missing a session. Students who fail to meet the minimum 85% attendance requirement or do not submit documentation within the required time frame will FAIL the unit.

Prolonged absences: Students who may require prolonged absences (>3 sessions) for a medical or health-related condition (e.g., serious, or debilitating illness or injury; hospitalisation; giving or recently given birth; mental health illness or condition), will require a face-to-face discussion with the Head of Course and the Unit Coordinator to discuss the most appropriate pathway for completion of the unit.

**Assessment Due Date**

Attendance rate will be determined at the end of term (i.e. Week 12)

**Return Date to Students**

Attendance rate will be determined at the end of term (i.e. Week 12)

**Weighting**

Pass/Fail

**Minimum mark or grade**

In order to pass the Attendance Hurdle you must attend at least 85% of all scheduled tutorials/practicals for this unit.

**Assessment Criteria**

Your attendance at each scheduled practical session will be recorded by the tutor using an attendance spreadsheet. The monitoring of attendance will take into consideration legitimate requests for absence, such as those outlined in the CQUniversity Assessment Policy and Procedure (Higher Education Coursework) document, and these will not be counted as absence for the purpose of this attendance requirement.

**Referencing Style**

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

**Submission**

No submission method provided.

**Learning Outcomes Assessed**

- Demonstrate acceptable professional and ethical behaviours consistent with a physiotherapy practitioner and community leader.

## 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