



# ALLH12008 *Functional Anatomy and Biomechanics*

## Term 1 - 2018

Profile information current as at 10/04/2024 04:57 pm

All details in this unit profile for ALLH12008 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 will provide students with a comprehensive overview of the functional anatomy and biomechanics, of human movement generally, but of locomotion more specifically. A strong focus will be on the integration of anatomical structures and functions and how these both influence, and are influenced by the manner in which the skeletal, muscular, nervous, and circulatory systems are integrated.

### 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: ALLH11005 Anatomy and Physiology for Health Professionals 1 ALLH11004 Anatomy and Physiology for Health Professionals 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 - 2018

- 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. **Online Quiz(zes)**

Weighting: 30%

#### 2. **Written Assessment**

Weighting: 20%

#### 3. **On-campus Activity**

Weighting: Pass/Fail

#### 4. **Practical Assessment**

Weighting: 50%

### 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 Unit Evaluations - Have Your Say

##### Feedback

Overall the students found the content interesting and the teaching staff to be very knowledgeable and engaging. Students also commented on how well the material aligned with their other units.

##### Recommendation

Although the content for this unit will be reviewed each year, the unit will endeavor to use the same permanent teaching staff at each campus.

#### Feedback from Student Unit Evaluations - Have Your Say

##### Feedback

A number of students requested more practical content as part of the tutorial sessions.

##### Recommendation

The tutorial sessions are primarily designed to foster deeper understanding of theoretical knowledge using problem-based learning in small groups. The inclusion of more practical content and demonstrations relevant to allied health will be considered that meet the learning objectives of the unit and the tutorial.

#### Feedback from Student Unit Evaluations - Have Your Say

##### Feedback

A number of students raised concerns about the written assignment, in particular, they identified inconsistencies in the information provided to them by academic staff, and in the Unit Profile and Moodle site.

##### Recommendation

The written assignment, including the topics, format and marking criteria will be reviewed to ensure the task meets the defined learning objectives and the expectations are clearly articulated to the students at the start of the unit by the unit coordinator.

## Unit Learning Outcomes

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

1. Describe and analyse mechanical, physiological and anatomical concepts in the context of human physical performance.
2. Explain and interpret key biomechanical principles and relate these to human function, including gait and other functional activities.
3. Perform a range of biomechanical assessments using quantitative measurement techniques, including assessment of their validity.
4. Recognise the scope of biomechanical principles in the management of patients.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Online Quiz(zes) - 30%	•	•		•
2 - Written Assessment - 20%	•	•		•
3 - On-campus Activity - 0%	•	•	•	•
4 - Practical Assessment - 50%	•	•	•	•

## 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				

## Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Online Quiz(zes) - 30%	•	•	•	•		•	•	•		
2 - Written Assessment - 20%	•	•	•	•			•	•		
3 - On-campus Activity - 0%	•									
4 - Practical Assessment - 50%	•	•	•	•				•		

## Textbooks and Resources

### Textbooks

ALLH12008

#### Prescribed

##### **Kinesiology of the musculoskeletal system: Foundations for rehabilitation**

3rd Edition (2016)

Authors: Donald A. Neumann

Mosby Elsevier

St. Louis , Missouri , USA

ISBN: 9780323287531

Binding: Hardcover

ALLH12008

#### Supplementary

##### **Neuromechanics of Human Movement**

Edition: 4th edn (2008)

Authors: Enoka, RM

Human Kinetics

Champaign , IL , USA

ISBN: 9780736066792

Binding: Paperback

ALLH12008

#### Supplementary

##### **Orthopedic Physical Assessment**

Edition: 6th (2014)

Authors: David J Magee

Elsevier Saunders

St. Louis , Missouri , USA

ISBN: 978-1-4557-0977-9

Binding: Hardcover

[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 6th Edition \(APA 6th edition\)](#)

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 - 05 Mar 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to course, overview of assessment tasks Introduction to biomechanical analysis	Chapters 1 and 4 (Neumann, 2017)	Written Assessment topics released

**Week 2 - 12 Mar 2018**

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

**Week 3 - 19 Mar 2018**

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

**Week 4 - 26 Mar 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of the knee Biomechanics of the ankle	Chapters 13 and 14 (Neumann, 2017)	

**Week 5 - 02 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of the foot	Chapter 14 (Neumann, 2017)	Online Quiz 1 (15%) - covers content from weeks 1 to 4. Wednesday 4th April at 10:00am.

**Vacation Week - 09 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Week 6 - 16 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Gait Analysis (Part 1): Gait cycle, joint kinematics Gait Analysis (Part 2): Joint kinetics, muscle activation	Chapters 15 and 16 (Neumann, 2017)	

**Week 7 - 23 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of the spine (Part 1): Joints Biomechanics of the spine (Part 2): Musculature	Chapters 9 and 10 (Neumann, 2017)	

**Week 8 - 30 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of the spine (Part 3): Injury mechanisms and lifting techniques	Chapters 9 and 10 (Neumann, 2017)	<b>Clinical Biomechanics Report</b> Due: Week 8 Friday (4 May 2018) 5:00 pm AEST

**Week 9 - 07 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Biomechanics of the shoulder (Part 1): Joints Biomechanics of the shoulder (Part 2): Musculature and throwing	Chapter 5 (Neumann, 2017)	

**Week 10 - 14 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Biomechanics of the elbow and forearm  
Biomechanics of the wrist and hand

Chapters 6, 7 and 8 (Neumann, 2017)

### Week 11 - 21 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Assessment and Revision	N/A	Online Quiz 2 (15%) - covers content from weeks 5 to 10. Wednesday 23rd May at 11:00 am.

### Week 12 - 28 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Revision - No classes scheduled	N/A	

### Review/Exam Week - 04 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic
Revision and examination preparation.	N/A	Online Written Test (50%) - covers content from weeks 1-10. To be held in either Exam Week 1 or Exam Week 2. Have Your Say - Course Evaluation

### Exam Week - 11 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic
Revision and examination preparation.	N/A	Online Written Test (50%) - covers content from weeks 1-10. To be held in either Exam Week 1 or Exam Week 2. Have Your Say - Course Evaluation

## Term Specific Information

## Assessment Tasks

### 1 Online Quiz(zes)

#### Assessment Type

Online Quiz(zes)

#### Task Description

There are two online quizzes each worth 15% of your overall unit grade.

- **Quiz 1** (15%) will be scheduled in **Week 5 on Wednesday 4th April at 10:00 am** and will assess all content (i.e. lectures and practicals) covered in weeks 1-4 inclusive.
- **Quiz 2** (15%) will be scheduled in **Week 11 on Wednesday 23rd May at 11:00 am** and will assess all content (i.e. lectures and practicals) covered in weeks 5-10 inclusive.

Each quiz will consist of up to 20 questions and each quiz will have a time limit of 40 minutes. Questions will be identical for all students, but will appear in a randomly generated order. Access to books, notes, websites (other than the quiz) and the use of other electronic devices are prohibited during the quiz.

Each quiz will consist of some, or all, of the following question types:

- Multiple choice
- True/False
- Word matching
- Fill in the missing word(s)
- Short answer/essay
- Questions relating to multimedia material (e.g. images, videos)

#### Number of Quizzes

2

**Frequency of Quizzes**

Other

**Assessment Due Date**

Quiz 1: Week 5 on Wednesday 4th April at 10:00 am. Quiz 2: Week 11 on Wednesday 23rd May at 11:00 am

**Return Date to Students**

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

**Weighting**

30%

**Assessment Criteria**

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

**Referencing Style**

- [American Psychological Association 6th Edition \(APA 6th edition\)](#)

**Submission**

Online

**Learning Outcomes Assessed**

- Describe and analyse mechanical, physiological and anatomical concepts in the context of human physical performance.
- Explain and interpret key biomechanical principles and relate these to human function, including gait and other functional activities.
- Recognise the scope of biomechanical principles in the management of patients.

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

## 2 Clinical Biomechanics Report

**Assessment Type**

Written Assessment

**Task Description**

You are required to select one case study from the list provided on Moodle. For your chosen case study, you are required to propose a biomechanical explanation/theory for your patient's presentation and a detailed description of how you would evaluate this explanation/theory in a modern biomechanics laboratory. In preparing this report, it is assumed that you have access to any equipment available in a start-of-the-art biomechanics laboratory, including, but not limited to the following: 2D and 3D motion analysis system (e.g. Vicon), force plates; pressure sensors; accelerometers; dynamometers; electromyography (EMG) and electrogoniometers. In preparing this report, it is important that you clearly link your biomechanical explanation/theory with your chosen biomechanical analysis, and justify your choice of analysis using current literature.

It is recommended (not required) that you structure your assignment as follows:

- Biomechanical Theory (~ 500 words) - propose a biomechanical explanation/theory to account for your patient's presentation.
- Biomechanical Analysis (~ 800 words) - propose a biomechanical analysis to evaluate your biomechanical explanation/theory. Be sure to include why you chose this analysis and the expected outcomes/results that would support your biomechanical explanation/theory.
- Summary/Conclusion (~200 words) - summarise the major points of the report.
- References (~20-30 maximum) - support all arguments using appropriate and high quality literature. This section is not included in the final word count.

**Word Limit:** The final word count must be between 1350 and 1650 words, including in-text references, tables and figures. The reference list is not included in the word limit. Appendices will not be accepted.



**Assessment Due Date**

Week 8 Friday (4 May 2018) 5:00 pm AEST

**Return Date to Students**

Week 10 Friday (18 May 2018)

**Weighting**

20%

**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.

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

- Organisation/structure and written expression (30%)
- Selection and interpretation of the biomechanical theory (35%)
- Selection and interpretation of the biomechanical analysis (35%)

**Word Limit Penalty:** Failing to adhere to the word limit, as set out in the Task Description (see above), will incur a 5% penalty from your initial mark for this assessment task. For example, if you were given an initial mark of 79% out of 100% for this assessment, but did not adhere to the word limit, you would receive a final mark for this assessment task of 74% out of 100%.

**Referencing Style**

- [American Psychological Association 6th Edition \(APA 6th edition\)](#)

**Submission**

Online

**Submission Instructions**

Online submission through Moodle

**Learning Outcomes Assessed**

- Describe and analyse mechanical, physiological and anatomical concepts in the context of human physical performance.
- Explain and interpret key biomechanical principles and relate these to human function, including gait and other functional activities.
- Recognise the scope of biomechanical principles in the management of patients.

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Cross Cultural Competence
- Ethical practice

### 3 Attendance Hurdle

**Assessment Type**

On-campus Activity

**Task Description**

A minimum attendance rate of 85% for all scheduled tutorial and practical sessions is required to PASS this unit. This minimum attendance requirement is recommended by the Australian Physiotherapy Council. 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.

**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 be eligible to PASS this unit, you must achieve a PASS for the Attendance Hurdle. 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 6th Edition \(APA 6th edition\)](#)

### Submission

No submission method provided.

### Learning Outcomes Assessed

- Describe and analyse mechanical, physiological and anatomical concepts in the context of human physical performance.
- Explain and interpret key biomechanical principles and relate these to human function, including gait and other functional activities.
- Perform a range of biomechanical assessments using quantitative measurement techniques, including assessment of their validity.
- Recognise the scope of biomechanical principles in the management of patients.

### Graduate Attributes

- Communication

## 4 Online Written Test

### Assessment Type

Practical Assessment

### Task Description

The Online Written Test is a 2.5 hour written examination that will be delivered online via Moodle. The Online Written Test will examine all content covered during the term, including lectures, practicals and required readings. The test will include short answer/essay questions only. These questions will require you to interpret images, videos and/or clinical scenarios to answer questions that assess your theoretical knowledge of functional anatomy and biomechanics, as well as your observational, analytical and problem-solving skills. The Online Written Test is a closed book examination that will be held on-campus during Exam Week 1 or Exam Week 2 (location, date and time to be announced during term). Access to books, notes, websites (other than the examination) and the use of other electronic devices are prohibited during the test.

**Duration:** 150 minutes

### Assessment Due Date

The Online Written Test will take place during either Exam Week 1 or Exam Week 2.

### Return Date to Students

Final grades will be published on Moodle after moderation and the certification of grades date for term 1.

### Weighting

50%

### Minimum mark or grade

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

### Assessment Criteria

The Online Written Test will be marked manually to provide a numerical score and an overall percentage mark for the assessment item.

**Referencing Style**

- [American Psychological Association 6th Edition \(APA 6th edition\)](#)

**Submission**

Online

**Learning Outcomes Assessed**

- Describe and analyse mechanical, physiological and anatomical concepts in the context of human physical performance.
- Explain and interpret key biomechanical principles and relate these to human function, including gait and other functional activities.
- Perform a range of biomechanical assessments using quantitative measurement techniques, including assessment of their validity.
- Recognise the scope of biomechanical principles in the management of patients.

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Ethical practice

## 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