



# MEDS13007 Musculoskeletal Sonography

## Term 1 - 2023

Profile information current as at 29/04/2024 07:51 pm

All details in this unit profile for MEDS13007 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 introduces you to the principal theory in musculoskeletal sonography with opportunity for lab activities designed to enhance your learning. In this unit you will apply your knowledge of detailed relational anatomy and pathophysiology, and correlate this with new knowledge on sonographic appearance, scanning orientation and scanning skills relevant to the musculoskeletal system. You will demonstrate understanding of the clinical indication of musculoskeletal ultrasound, applying clinical reasoning in planning for the scanning protocol for each individual patient and implementing patient care and safety in performing musculoskeletal sonography. You will interpret static and dynamic musculoskeletal sonographic imaging and create a provisional diagnostic report as well as explaining differential diagnosis and alternative diagnostic studies based on the clinical information.

#### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

#### Pre-requisites or Co-requisites

Prerequisites: MEDS12001 Physics of Ultrasound AND MEDS12003 Superficial Structures in Ultrasound AND MEDS12004 Sonographic Skills Development 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 - 2023

- Brisbane
- Mackay
- Melbourne
- Perth
- Sydney

#### 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. **Reflective Practice Assignment**

Weighting: 40%

#### 2. **Online Quiz(zes)**

Weighting: 60%

### 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 Unit Coordinator reflection, Moodle logs and CQUSuccess data

##### **Feedback**

Some students had poor engagement with the unit content until immediately before an assessment item was due.

##### **Recommendation**

Consider modifying timing of lab (scanning) sessions to ensure early and regular engagement with the learning content.

#### Feedback from SUTE Unit Report and student communication.

##### **Feedback**

Some students felt the lectures are too textbook-oriented and would like to have more real-world applications included.

##### **Recommendation**

Adjust the lectures to include more explanation on theoretic contents and their clinical relevance, as well as clinical stories, scanning tips and examples of the unit coordinator's own experience. This may increase the authenticity of the learning experience.

#### Feedback from SUTE Unit Report and Unit Coordinator reflection

##### **Feedback**

Some students felt confused about the referencing and academic integrity requirement, even though an ALC workshop and learning resources had been provided at the beginning of term.

##### **Recommendation**

Provide more specific explanation on the assessment tasks with more exemplars.

## Unit Learning Outcomes

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

1. Correlate relational anatomy of musculoskeletal structures with standard static and dynamic sonographic imaging.
2. Describe clinical indications relevant to sonographic musculoskeletal examinations, patient care and safety considerations, and alternative musculoskeletal diagnostic studies that can be performed.
3. Critically acquire sonographic imaging of musculoskeletal structures, including image optimisation, using a systematic protocol in a simulated environment.
4. Interpret static and dynamic musculoskeletal sonographic imaging of normal anatomy and imaging demonstrating variants, artefacts, pathology or injury to create a provisional diagnostic report.

The learning outcomes for this unit have been linked to:

ASAR Required Graduate Competency Outcomes for General Sonography Accreditation Standards 1.2. 1,2,3,4, 5 and 9

## Alignment of Learning Outcomes, Assessment and Graduate Attributes

 N/A Level	 Introductory Level	 Intermediate Level	 Graduate Level	 Professional Level	 Advanced Level
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### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
<b>1 - Reflective Practice Assignment - 40%</b>	•		•	•
<b>2 - Online Quiz(zes) - 60%</b>	•	•		•

### Alignment of Graduate Attributes to Learning Outcomes

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

## Textbooks and Resources

### Textbooks

MEDS13007

#### Prescribed

##### **Fundamentals of Musculoskeletal Ultrasound**

Edition: 3rd (2018)

Authors: Jacobson, Jon A.

Elsevier

Atlanta , Georgia , United States

ISBN: 9780323445252

Binding: Paperback

MEDS13007

#### Prescribed

##### **Illustrated Essentials of Musculoskeletal Anatomy**

Edition: 6th (2019)

Authors: Sieg and Adams

Megabooks, Incorporated

Gainesville , FL , United States

ISBN: 9780935157116

Binding: Spiral

MEDS13007

#### Supplementary

##### **Clinical Ultrasound**

Edition: 3rd (2011)

Authors: Allan, Paul

Churchill Livingstone

United States

ISBN: 9780702031311

Binding: eBook

MEDS13007

#### Supplementary

##### **Diagnostic ultrasound**

Edition: 4th (2011)

Authors: Rumack, Carol M.

Elsevier/Mosby

Philadelphia , PA , United States

ISBN: 0323053971

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)
- Webcam and headset for on-line sessions.

## Referencing Style

All submissions for this unit must use the referencing style: [Vancouver](#)  
For further information, see the Assessment Tasks.

## Teaching Contacts

**Elaine Wang** Unit Coordinator  
[e.wang@cqu.edu.au](mailto:e.wang@cqu.edu.au)

## Schedule

### Week 1 - 06 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to musculoskeletal ultrasound; Calf	Jacobson JA. Fundamentals of musculoskeletal ultrasound e-book 3rd Ed: Elsevier Health Sciences; 2017. Chap 1, pp1-15; Chap 8, pp350-351, 386-387. Additional content will be provided via lectures and eReading list.	Lab induction to be completed on-line. MSK lab 1 on Wednesday Drop-in session at 7pm AEST on Wednesday

### Week 2 - 13 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Elbow	Jacobson (3rd Ed): Chap 4, pp127-158. Additional content will be provided via lectures and eReading list.	Zoom tutorial at 7pm AEST on Wednesday

### Week 3 - 20 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Shoulder	Jacobson (3rd Ed): Chap 3, pp55-125. Additional content will be provided via lectures and eReading list.	MSK lab 2 on Wednesday Drop-in session at 7pm AEST on Wednesday

### Week 4 - 27 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Shoulder	Jacobson (3rd Ed): Chap 3, pp55-125. Additional content will be provided via lectures and eReading list.	Zoom tutorial at 7pm AEST on Wednesday

### Week 5 - 03 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
Knee	Jacobson (3rd Ed): Chap 7, pp284-327. Additional content will be provided via lectures and eReading list.	Drop-in session at 7pm AEST on Wednesday Be aware of the time changing as daylight saving ends on 2 April 2023

### Vacation Week - 10 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
		No tutorial or drop-in session

### Week 6 - 17 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
Wrist and hand	Jacobson (3rd Ed): Chap 5 , pp168-222 . Additional content will be provided via lectures and eReading list.	<b>Online Quiz 1 due: Friday 11:00-13:00 AEST</b> Zoom tutorial at 7pm AEST on Wednesday

### Week 7 - 24 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
Ankle and Foot	Jacobson (3rd Ed): Chap 8 , pp328-350, 352-386, 387- 401. Additional content will be provided via lectures and eReading list.	Drop-in session at 7pm AEST on Wednesday.

**Week 8 - 01 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Hip and Thigh	Jacobson (3rd Ed): Chap 6, pp223-237, 239 -247, 249 -276. Additional content will be provided via lectures and eReading list.	Zoom tutorial at 7pm AEST on Wednesday

**Week 9 - 08 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Abdominal Wall	Jacobson (3rd Ed): Chap 6, pp237-239, 276-280 Additional content will be provided via lectures and eReading list.	<b>Reflective Practice Assignment submission via Feedback Fruits platform due: Monday 16:00 AEST</b> Drop-in session at 7pm AEST on Wednesday.

**Week 10 - 15 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Peripheral Nerve Entrapment	Jacobson (3rd Ed): Chap 4, pp158-166; Chap 5, pp203-210; Chap 6, pp271-273; Chap 7, pp320-321; Chap 8, pp398-401 Additional content will be provided via lectures and eReading list.	<b>Reflective Practice Assignment final submission due: Thursday 16:00 AEST</b> Zoom tutorial at 7pm AEST on Wednesday

**Week 11 - 22 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Small Joints Diseases	Jacobson (3rd Ed): Chap 4, pp141-149; Chap 5, pp189-195; Chap 7, pp 300-309 & 313; Chap 8, pp352-363. Additional content will be provided via lectures and eReading list.	Drop-in session at 7pm AEST on Wednesday

**Week 12 - 29 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
Pathology of Musculoskeletal System	Jacobson (3rd Ed): Chap 2 , pp16-53 . Additional content will be provided via lectures and eReading list.	Zoom tutorial at 7pm AEST on Wednesday

**Review/Exam Week - 05 Jun 2023**

Module/Topic	Chapter	Events and Submissions/Topic
		<b>Online Quiz 2 due: Tuesday 11:00-13:00 AEST</b>

**Exam Week - 12 Jun 2023**

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

Your unit coordinator for this unit is **Elaine Wang**. Elaine works for CQUniversity on **Mondays, Tuesdays and Wednesdays**. Elaine is based at Sydney campus and can be reached via email at [e.wang@cqu.edu.au](mailto:e.wang@cqu.edu.au).

This unit covers the sonographic assessment of musculoskeletal structures. To undertake sonographic musculoskeletal assessments, it is important to have a deep understanding of the relative anatomy of the structures to be demonstrated.

**An understanding of the relational anatomy of musculoskeletal structures is assumed in this unit.** To allow you to refresh your anatomical knowledge (covered in year 1 of the Medical Sonography course), a formative quiz is available for you to complete. **You will need to ensure you complete this (multiple attempts are allowed) prior to gaining access to subsequent resources in this unit.**

To allow you to gain some understanding regarding the practical sonographic assessment of musculoskeletal structures, you will attend two sonographic lab sessions. In these sessions you will scan other students to appreciate transducer placement and manipulation, patient positioning and dynamic movements required to assess structures in real time. One of the assessment tasks for this unit also requires you to obtain sonographic imaging of structures, which can be completed in these labs.

All lectures are pre-recorded and available on the MEDS13007 Moodle site, along with the associated lecture notes and reading material found in the eReading list. Other resources you will find on the Moodle site include advice from previous students, weekly learning outcomes with review questions, and frequently asked questions.

Interactive tutorials are provided every week via zoom. In addition to covering the content related to musculoskeletal ultrasound your clinical reasoning and image interpretation skills will be extended. You will be guided on how to develop systematic and logical thinking in regard to musculoskeletal sonography. To ensure these are interactive every second tutorial is called a 'drop-in session'. This will allow you the opportunity to bring questions to be answered or ask for clarification on concepts covered in this unit. **The best benefit from these tutorials is gained by live attendance.** The tutorials will be recorded each week for those that cannot attend (if no students attend, no recording will be available).

## Assessment Tasks

### 1 REFLECTIVE PRACTICE ASSIGNMENT

#### Assessment Type

Reflective Practice Assignment

#### Task Description

This task requires you to:

- Sonographically **scan and acquire specific static sonographic images of two specific musculoskeletal structures** and their anatomical surrounds from other students in the CQU sonography lab (total of 2 labelled sonographic images to be submitted).
- Review the technique you used and the quality of the subsequent images and provide a **written reflection and**



**critique of your sonographic technique and subsequent images** and consider what actions you could take in the future to allow improvement (1000 words).

- Review a peer's stored static sonographic images and provide feedback in written form (300 words).
- Gain a peer's written feedback regarding your two sonographic images and submit.

The **two musculoskeletal structures** to be sonographically imaged are:

- Elbow tendons (medial or lateral) – Long axis image
- Median nerve (at wrist or elbow) – Short axis image

**Associated formative task:** To allow you to practice this task, you are invited to submit a formative task in week 5 where you can image the calf muscles (medial gastrocnemius and soleus), and gain feedback to inform your summative submission (due in week 10). This task can be submitted via the formative week 5 assessment portal.

**For each structure imaged you are required to:**

1. ***Practically acquire sonographic images of musculoskeletal structures as listed above. Images submitted must include***
  - Your name, your date of birth, date of image acquisition to be recorded on static images
  - Appropriate annotation of stored static sonographic images (axis of imaging, structure of interest demonstrated)
2. ***Reflect and review your practical technique used and subsequent sonographic images acquired.*** You will need to complete a written document which includes:
  - Static sonographic images which must have pertinent structures labelled (some labels can be annotated not at time of imaging)
  - An outline of how the images were acquired – including an outline of the patient positioning of body and structure of interest, sonographic landmarks used to locate the structure of interest, and transducer placement.
  - A critique of the static sonographic image acquired.
  - If and how the sonographic imaging and subsequent stored image could have been improved to allow enhanced demonstration of the structures of interest in the correct axis and a justification. This can include what preparation you undertook prior to practically sonographically scanning the structure of interest.
  - What you would incorporate into your technique to sonographically assess this structure or similar structures in the plane demonstrated in the future.
  - Include a reflection on what general musculoskeletal sonographic principles you would use to apply to other musculoskeletal regions of the body.
  - Remove your ID (name and date of birth) on your image and submit your file to the Feedback Fruits platform.
3. ***Provide written reflection via the Feedback Fruits platform of a fellow student's static sonographic images.***
  - You will be automatically assigned a student's images to review. These will be deidentified, so feedback will be anonymous.
  - The student images you are critiquing must be submitted along with your feedback.
4. ***Obtain anonymous feedback from a fellow student on your work via Feedback Fruits platform and submit a copy of this to the word document written submission.***
  - A fellow student will be automatically assigned to provide feedback on your image. The reviewing student will be anonymous.
5. ***Submit a copy of the final word document written submission, together with:***
  - Your original images with your name and date of birth
  - The feedback you provided
  - The feedback you received

An exemplar of this task is available on the unit Moodle site for you to use as a guide.

### **Assessment Due Date**

Summative assessment (elbow tendons and median nerve imaging): Submission for peer feedback: 8th May 2023, 16:00 AEST (Week 9, Monday); Final submission: 18th May 2023, 16:00 AEST (Week 10, Thursday).

### **Return Date to Students**

Summative assessment: 2nd June 2023 (Week 12, Friday).

### **Weighting**

40%

**Minimum mark or grade**

50%

**Assessment Criteria**

The detailed assessment marking criteria can be accessed from the unit Moodle site.

Overall, you will be assessed on:

- All sonographic images and anatomical diagrams are labelled accurately.
- Relevant information provided reflecting good understanding of the content
- Reflection identifies areas for improvement if required and allows for future practice to be enhanced.
- In-text citation of sources used to verify information with appropriate reference list at the end.
- Adherence to the word limit for **each case** to allow adequate reflection to be discussed: Own reflection: 1000 words. Peer reflection: 300 words. Excess words will not be assessed.

**Referencing Style**

- [Vancouver](#)

**Submission**

Online

**Submission Instructions**

Online via Moodle

**Learning Outcomes Assessed**

- Correlate relational anatomy of musculoskeletal structures with standard static and dynamic sonographic imaging.
- Critically acquire sonographic imaging of musculoskeletal structures, including image optimisation, using a systematic protocol in a simulated environment.
- Interpret static and dynamic musculoskeletal sonographic imaging of normal anatomy and imaging demonstrating variants, artefacts, pathology or injury to create a provisional diagnostic report.

## 2 ONLINE QUIZZES

**Assessment Type**

Online Quiz(zes)

**Task Description**

You need to complete two online quizzes which assess you on material covered in lectures, prescribed readings, tutorials and any additional resources supplied during the term.

- Quiz 1 weighting is **20%** of unit total and covers content from week 1 to week 5.
- Quiz 2 weighting is **40%** of unit total and covers content in the entire unit from week 1 to week 12.

The quizzes involve a variety question types, which may include short and long answer questions which require typed answers, drag and drop questions and combined questions.

The quiz **cannot be paused once started, nor reattempted once finished**.

These online quizzes must be completed by you alone, **without assistance or collusion with others**. Any evidence of collusion will be dealt with in adherence with the CQU student academic integrity policy and procedure.

Please be aware

- The quizzes are time limited so familiarity with the content is required
- If you experience any technical difficulties accessing or during the test, please ring TaSAC and notify your Unit Coordinator as soon as physically possible (same day) with details of the technical issue.

**Number of Quizzes**

2

**Frequency of Quizzes**

Other

**Assessment Due Date**

Quiz 1: 21st April 2023, 11:00 – 13:00 AEST (Week 6, Friday); Quiz 2: 6th June 2023, 11:00 – 13:00 AEST (Week 13,

Tuesday)

### **Return Date to Students**

Quiz 1: Return from 5th May 2023 (Week 8, Friday), after all students have completed. Quiz 2: Return from 2nd June 2023 (Week 12, Friday), after all students have completed.

### **Weighting**

60%

### **Minimum mark or grade**

50%

### **Assessment Criteria**

The quizzes involve a variety question type including the following ones.

- For drag and drop questions, you will be required to drag the most appropriate answer from a selection of possible answers and drop into the correct area.
- For combined questions, you will be asked either to decide whether the given statement is correct, or to fill in the words as required.

Exemplars can be accessed from the unit Moodle site.

Typed response answers will be assessed according to:

- Use of appropriate medical and sonographic terminology and descriptors and directional terms.
- Correct spelling of the terms.
- Relevance of response to the question asked.
- Irrelevant or incorrect information excluded.
- Adequate detail provided in the answer.

### **Referencing Style**

- [Vancouver](#)

### **Submission**

Online

### **Submission Instructions**

The online test can be accessed via the MEDS13007 Moodle site, under the assessment tab.

### **Learning Outcomes Assessed**

- Correlate relational anatomy of musculoskeletal structures with standard static and dynamic sonographic imaging.
- Describe clinical indications relevant to sonographic musculoskeletal examinations, patient care and safety considerations, and alternative musculoskeletal diagnostic studies that can be performed.
- Interpret static and dynamic musculoskeletal sonographic imaging of normal anatomy and imaging demonstrating variants, artefacts, pathology or injury to create a provisional diagnostic report.

## 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