



# MEDS20019 *Advanced Vascular Ultrasound*

## Term 2 - 2022

Profile information current as at 27/04/2024 02:03 am

All details in this unit profile for MEDS20019 have been officially approved by CQU University 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

Vascular ultrasound is a common part of clinical practice and with the ageing of the population the incidence of peripheral, abdominal and extra cranial vascular disease is on the rise. In this unit, you will study advanced practice in vascular ultrasound, both arterial and venous. You will acquire knowledge of vascular anatomy, pathophysiology and flow haemodynamics. The application and measurements used in the non-invasive interrogation of peripheral, abdominal and extra cranial vasculature will be explained. You will appreciate the role of ultrasound, and other imaging modalities, in the clinical assessment, diagnosis and management of a patient with vascular disease, including professional, legal and ethical considerations. The classic signs, symptoms, aetiology, prevalence of major peripheral, abdominal and extra cranial vascular disease will be discussed. Case studies will include new developments in vascular ultrasound imaging.

### Details

Career Level: *Postgraduate*

Unit Level: *Level 9*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

There are no requisites for this unit.

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 2 - 2022

- Online

### 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 Postgraduate 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. **Portfolio**

Weighting: 50%

#### 2. **Online Test**

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 "Have Your Say"

**Feedback**

Students benefited from the extensive e-reading list of the unit which they could easily access and use as references for their assignments.

**Recommendation**

Continue to revise and update the e-reading list to expose students to contemporary research in the field of vascular ultrasound.

#### Feedback from "Have Your Say"

**Feedback**

Students commented that the unit coordinator had great communication skills and touched based every week at least once to update the class as what is expected for the coming week.

**Recommendation**

Continue to maintain regular communication with students throughout the term via the news forum to update students of relevant weekly unit content and expectations.

#### Feedback from "Have Your Say"

**Feedback**

Students commented that the practice online test was beneficial in preparing them for the final assessment.

**Recommendation**

Continue to offer the practice online test to help students prepare for their final assessment.

## Unit Learning Outcomes

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

1. Discuss the classic signs, symptoms, aetiology, and prevalence of major peripheral, abdominal and extra cranial vascular disease
2. Analyse sonographic anatomy and haemodynamic appearances of normal and pathological features of the peripheral, abdominal and extra cranial vasculature in order to interpret and communicate the sonographic findings
3. Detect vascular pathology through analysis and interpretation of ultrasound images obtained from clinical case studies of common and rare vascular conditions
4. Evaluate the role of ultrasound and other imaging modalities in the clinical assessment, diagnosis and management of vascular disease, including professional, legal and ethical considerations.

The Masters course does not lead to entry into the sonography profession but is rather studied by qualified practitioners to support advanced practice. Therefore it does not require external accreditation. The Master of Medical Ultrasound qualifies as Continuing Professional Development (CPD) activity (activity code 10B - Australian Sonographers Accreditation Registry (ASAR)). Thus unit alone does not lead to award of a qualification in specialist vascular ultrasound.

## 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
1 - Portfolio - 50%	•	•		•
2 - Online Test - 50%	•	•	•	

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Knowledge	○	○	○	
2 - Communication	○	○	○	○
3 - Cognitive, technical and creative skills		○	○	
4 - Research				○
5 - Self-management				○
6 - Ethical and Professional Responsibility	○	○	○	○
7 - Leadership				
8 - 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
1 - Portfolio - 50%	○	○	○	○	○	○		
2 - Online Test - 50%	○	○	○			○		

## Textbooks and Resources

### Textbooks

MEDS20019

#### Prescribed

#### **CLINICAL DOPPLER ULTRASOUND**

THIRD EDITION (2014)

Authors: MYRON A POZNIAK and PAUL L. ALLAN

CHURCHILL LIVINGSTONE ELSEVIER

LONDON , UK

ISBN: 978-0-7020-5015-2

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: [Vancouver](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Michelle Fenech** Unit Coordinator

[m.fenech@cqu.edu.au](mailto:m.fenech@cqu.edu.au)

**Susan Gibb** Unit Coordinator

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

## Schedule

### **Week 1- Revision of Doppler physics and haemodynamic principles - 11 Jul 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Revision of Doppler physics and haemodynamic principles	Clinical Doppler Ultrasound, Pozniak and Allan: Chapters 1 and 2: pp 1-38 Vascular Ultrasound, How, Why and When, Thrush and Hartshorn: Chapters 3, 4, 5, 6 and 7: pp 23-85 Recorded lectures	

### **Week 2- The abdominal aorta and branches - 18 Jul 2022**

Module/Topic	Chapter	Events and Submissions/Topic
The abdominal aorta and branches	Pozniak and Allan: Chapter 6: pp 122-134, Chapter 9: pp 193-213 Thrush and Hartshorn: Chapter 12 pp 175-191 Recorded lectures and reading materials posted on Moodle. E-reading list.	

**Week 3- Peripheral arteries lower limb - 25 Jul 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Peripheral arteries, lower limb	Pozniak and Allan: Chapter 4 pp 71-93 Thrush and Hartshorn: Chapter 9 pp 117-141 Recorded lectures and reading materials posted on Moodle. E-reading list.	

**Week 4- Peripheral arteries upper limb - 01 Aug 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Peripheral arteries, upper limb	Pozniak and Allan: Chapter 4 pp 77-82 Thrush and Hartshorn: Chapter 10 pp 143-154 Recorded lectures and reading materials posted on Moodle. E-reading list.	

**Week 5- Peripheral veins lower limb - 08 Aug 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Peripheral veins, lower limb	Pozniak and Allan: Chapter 5 pp 94-121 Thrush and Hartshorn: Chapter 13 pp 193-232, Chapter 14 pp 233-249 Recorded lectures and reading materials posted on Moodle. E-reading list.	

**Vacation Week - 15 Aug 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Break Week		

**Week 6- Peripheral veins upper limb - 22 Aug 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Peripheral veins, upper limb	Pozniak and Allan: Chapter 5 pp 102-103 Thrush and Hartshorn: Chapter 14 pp 250-253 Recorded lectures and reading materials posted on Moodle. E-reading list.	

**Week 7- Carotid and Vertebral arteries - 29 Aug 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Carotid and vertebral arteries	Pozniak and Allan: Chapter 3 pp 39-70 Thrush and Hartshorn: Chapter 8 pp 87-116 Recorded lectures and reading materials posted on Moodle. E-reading list.	

**Week 8- Mixed topics: Renal artery and Penile Doppler ultrasound - 05 Sep 2022**

Module/Topic	Chapter	Events and Submissions/Topic
Mixed Topics: Renal artery Doppler Penile Doppler Ultrasound	Pozniak and Allan: Chapter 9 and Chapter 12 pp 261-272 Thrush and Hartshorn: Chapter 12 pp 188-199 Recorded lectures and reading materials posted on Moodle. E-reading list.	

**Week 9- Mixed topics: Haemodynamic AVF access and ovarian veins duplex assessment - 12 Sep 2022**

Module/Topic	Chapter	Events and Submissions/Topic
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Mixed Topics:  
Pre and post AVF duplex scan  
Ovarian veins duplex assessments

Pozniak and Allan: Chapter 7  
Thrush and Hartshorn: Chapter 16 pp  
284-297  
Recorded lectures and reading  
materials posted on Moodle.  
E-reading list.

**Portfolio** Due: Week 9 Friday (16  
Sept 2022) 2:00 pm AEST

### Week 10- Contemporary vascular imaging - 19 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Contemporary Vascular Imaging	Latest research articles and links to latest websites available from the e-reading list.	

### Week 11- Revision and consolidation - 26 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Revision		

### Week 12- General discussion and Q&A - 03 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic
Online test.		

### Review/Exam Week - 10 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic
		<b>Online test</b> Due: Review/Exam Week Friday (14 Oct 2022) 7:00 pm AEST

### Exam Week - 17 Oct 2022

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

It is important to check your student email regularly as updates about this unit will be sent from the unit coordinator by email. Please ensure email correspondence is done via your CQU student email. This unit is a 6-credit point unit which requires you to allocate around 12.5 hours per week for study. The unit is graded. There are two assessment items, please refer to the assessment information for more details. Recorded lectures are provided, and interactive tutorials will be offered to discuss course content, and assessment preparation. You will be able to ask questions and discuss concepts with your peers and tutor and gain feedback related to assessment tasks at these interactive tutorials. The times and dates of tutorials will be provided at the commencement of the term. The schedule of these may change throughout the term, so check for updates of these on the unit Moodle site and via emails.

## Assessment Tasks

### 1 Portfolio

#### Assessment Type

Portfolio

#### Task Description

As a sonographer, a comprehensive knowledge of vascular duplex imaging techniques and recognition of ultrasound appearances in the presence of a vascular disease are imperative. Knowledge of the pathophysiology of vascular disease together with the ability to recognise haemodynamic changes in venous and arterial flow equips sonographers with the skills required to interpret the findings and impart the correct information to the referring clinician.

You are required to submit a portfolio of two sonographic vascular case reports of the same region, one with and one without a vascular pathology. The sonographic vascular examinations included in the case reports are expected to be completed by you.

Your portfolio will include an introduction to describe the two cases and why you have presented these, including the importance of the role of vascular ultrasound in patient management.

A critical review of relevant literature related to the sonographic studies and pathology discussed is required.

Each case report will include a discussion of:

- Brief patient history and discussion of the clinical question of interest.
- Imaging and non-imaging investigations undertaken
- Pre-test clinical diagnosis
- Sonographic examination conducted including discussion of sonographic technique
- Sonographic findings
- Comparison of sonographic findings to any other diagnostic tests performed
- Pathology demonstrated or excluded
- Differential diagnosis
- Impact of imaging findings on management of patient
- Post-intervention ultrasound findings if relevant

The portfolio will also include a discussion to compare the normal and abnormal sonographic findings provided in each case presented.

You must include a conclusion to highlight key learning points, any new findings in literature that could be communicated to other sonographers regarding these cases, and any suggestions for future research to be conducted that may improve sonographic diagnosis of the vascular conditions discussed.

The word count for the portfolio is 2000 words +/- 10% (excluding the title, headings, tables, diagrams, figure legends and the references).

Relevant de-identified sonographic images must be included and referred to within the document.

### **Assessment Due Date**

Week 9 Friday (16 Sept 2022) 2:00 pm AEST

Late submissions (without prior approval of extension) will be subject to deduction of 5% overall marks per 24 hours delay.

### **Return Date to Students**

Week 11 Friday (30 Sept 2022)

Students' marks together with marking rubrics containing feedback will be uploaded onto the unit Moodle site.

### **Weighting**

50%

### **Minimum mark or grade**

50%

### **Assessment Criteria**

The portfolio must be written in a coherent and cohesive manner with a good flow of ideas which is engaging to the reader.

The rationale behind the imaging request should be clearly discussed and linked to vascular sonographic findings.

Logical evidence-based discussion with sufficient in-text citations is required.

The significance of the sonographic examinations undertaken must be explained.

Adherence to academic writing conventions is required.

### **Referencing Style**

- [Vancouver](#)

### **Submission**

Online

### **Submission Instructions**

The portfolio to be submitted as one file in Word format. A cover sheet is required containing student's name and number, the title of the assessment and the unit name.

### **Learning Outcomes Assessed**

- Discuss the classic signs, symptoms, aetiology, and prevalence of major peripheral, abdominal and extra cranial vascular disease
- Analyse sonographic anatomy and haemodynamic appearances of normal and pathological features of the peripheral, abdominal and extra cranial vasculature in order to interpret and communicate the sonographic findings
- Evaluate the role of ultrasound and other imaging modalities in the clinical assessment, diagnosis and management of vascular disease, including professional, legal and ethical considerations.

### **Graduate Attributes**

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research



- Self-management
- Ethical and Professional Responsibility

## 2 Online test

### Assessment Type

Online Test

### Task Description

Every health professional needs to possess a body of knowledge that is relevant to their scope of practice whereby the fundamentals are required to be understood which you will build upon clinically. To demonstrate your knowledge and understanding of concepts covered in this unit you are required to complete an online test. The test can be accessed through the assessment tab on the unit Moodle site. It will be open for one week. You will need to provide typed responses to 10 online questions within a 1.5 hour (90 minute) time period (allowing 9 minutes per question). Sonographic image viewing questions will be included and you are required to be familiar with normal and abnormal sonographic appearances of the vascular systems discussed in this unit. You must note opening and closing times to complete the test during this time period. You are required to provide typed answers and only ONE attempt of the test is allowed. Once started, the test cannot be paused or restarted. This assessment is to be undertaken as an individual. The test will open at Friday 7th October 9am (AEST) and close on Friday 14th October 7 pm (AEST), 2022.

### Assessment Due Date

Review/Exam Week Friday (14 Oct 2022) 7:00 pm AEST

The access to the online test will be open from Friday 7th October 09:00 am AEST and close on Friday 14th October.

### Return Date to Students

Exam Week Friday (21 Oct 2022)

### Weighting

50%

### Minimum mark or grade

50%

### Assessment Criteria

Responses will be assessed according to

- Use of appropriate terminology and descriptors as well as grammar, spelling, the relevance of response and competence in addressing all elements of the question.
- The student's ability to appropriately interpret sonographic images/graphs/tables and then to succinctly compose an appropriate response based on their learning from the unit.

### Referencing Style

- [Vancouver](#)

### Submission

Online

### Learning Outcomes Assessed

- Discuss the classic signs, symptoms, aetiology, and prevalence of major peripheral, abdominal and extra cranial vascular disease
- Analyse sonographic anatomy and haemodynamic appearances of normal and pathological features of the peripheral, abdominal and extra cranial vasculature in order to interpret and communicate the sonographic findings
- Detect vascular pathology through analysis and interpretation of ultrasound images obtained from clinical case studies of common and rare vascular conditions

### Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Ethical and Professional Responsibility

## 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