MEDS20014 *Bedside Cardiac Ultrasound for Point of Care (PoCUS)*
Term 3 - 2018

Profile information current as at 30/04/2024 10:25 pm

General Information

Overview
This unit aims to develop your knowledge and understanding of the point of care ultrasound (PoCUS) to identify and diagnose cardiac pathology. To enrol in this unit you must be a graduate of a science or health / medical course. To successfully complete all assessments, you must be able to undertake ultrasound scans in a clinical environment with appropriate supervision. You will use PoCUS to identify cardiac anatomical structures and diagnose pathology to assist patient management. You will learn transducer manipulation techniques and skills to optimise ultrasound images for documentation.

Details
Career Level: *Postgraduate*
Unit Level: *Level 8*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
Co-requisite:MEDS20009 Science and Instrumentation of Ultrasound
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 3 - 2018

- Distance

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

Residential Schools
This unit has a Compulsory Residential School for distance mode students and the details are:
Click here to see your Residential School Timetable.

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

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit 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. **Written Assessment**
Weighting: Pass/Fail
2. **Portfolio**
Weighting: Pass/Fail

Assessment Grading

This is a pass/fail (non-graded) unit. To pass the unit, you must pass all of the individual assessment tasks shown in the table above.

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 Moodle

Feedback
Opportunity to enhance structure of Moodle site.

Recommendation
Structure of Moodle site enhanced.

Feedback from Moodle

Feedback
Opportunity to enhance structure of Residential School.

Recommendation
Structure of Residential School enhanced.

Feedback from Moodle

Feedback
Opportunity to enhance structure of Assessment items.

Recommendation
Structure of Assessment items enhanced.

Unit Learning Outcomes

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

1. Evaluate the benefits and limitations of using diagnostic transthoracic echocardiography in emergency or point of care (PoC) medicine
2. Apply safe transthoracic echocardiography techniques to generate optimised diagnostic images of the heart and great vessels
3. Integrate transthoracic echocardiography images into the clinical decision making process and patient management.

The International Federation for Emergency Medicine (IFEM) Point of care curriculum guidelines
3.3 Demonstration of how to generate and optimise an image- 2
3.4 Demonstration of good practice in point-of-care ultrasound- 1.2 and 3

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level • Introductory Level • Intermediate Level • Graduate Level ◦ Professional Level ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes		
	1	2	3
1 - Written Assessment - 0%	•	•	•
2 - Portfolio - 0%	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes		
	1	2	3
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 - Written Assessment - 0%	◦	◦	◦		◦	◦		
2 - Portfolio - 0%	◦	◦	◦	◦	◦	◦	◦	

Textbooks and Resources

Textbooks

There are no required textbooks.

Additional Textbook Information
There are no specific textbooks for this unit.

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Microphone, speakers and video camera to attend and participate in the Zoom tutorials

Referencing Style

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

Teaching Contacts

Aamer Aziz Unit Coordinator
a.aziz@cqu.edu.au
Ashley Spermon Unit Coordinator
a.spermon@cqu.edu.au

Schedule

Week 1: Introduction into FoCUS - 05 Nov 2018

Module/Topic	Chapter	Events and Submissions/Topic
Welcome to FoCUS. Unit profile and study requirements. **Introduction** to FoCUS. Principles, benefits, limitations, safe techniques and outcomes.	Lectures and readings on Moodle	**Zoom Tutorial** on Monday 5th November 2018 at 7.30 pm AEST.

Week 2: FoCUS protocol - 12 Nov 2018

Module/Topic	Chapter	Events and Submissions/Topic
FoCUS Protocol and the **Normal Heart**. Introduction of the 3 questions: Size? Function? Effusion?	Lectures and readings on Moodle	**Residence School 1** on Friday 12th November 2018 at CQUniversity Perth Campus - 9 am to 4 pm.

Week 3: Qualitative Assessment of the Left Ventricle - 19 Nov 2018

Module/Topic	Chapter	Events and Submissions/Topic
Qualitative Assessment of the Left Ventricle. Size and function.	Lectures and readings on Moodle	**Zoom Tutorial** on Monday 19th November 2018 at 7.30 pm AEST. Via a Zoom collaboration, students will each **present one case as a part of their Portfolio Assessment**. Please make sure patient privacy is adhered to.

Week 4: Qualitative Assessment of the Right Ventricle and Inferior Vena Cava - 26 Nov 2018

Module/Topic	Chapter	Events and Submissions/Topic
Qualitative Assessment of the Right Ventricle. Size and function. **Assessment of Inferior Vena Cava**. Size and collapsibility.	Lectures and readings on Moodle	

Vacation Week - 03 Dec 2018

Module/Topic	Chapter	Events and Submissions/Topic
Take a break - but don't forget to revise the content covered in previous weeks. Keep working on your portfolio.		

Week 5: Identification of Pericardial Effusion - 10 Dec 2018

Module/Topic	Chapter	Events and Submissions/Topic
Identification of Pericardial Effusion. Introduction to echocardiographic signs of tamponade. (While acknowledging that tamponade is a clinical diagnosis, there are a number of echocardiographic features that will assist the clinician in this diagnosis).	Lectures and readings on Moodle	**Zoom Tutorial** on Monday 10th December 2018 at 7.30 pm AEST. Via a Zoom collaboration, students will each **present one case as a part of their Portfolio Assessment**. Please make sure patient privacy is adhered to.

Week 6: Clinical Applications of FoCUS 1 - 17 Dec 2018

Module/Topic	Chapter	Events and Submissions/Topic
Clinical Applications of FoCUS. Case Studies: Part 1.	Lectures and readings on Moodle	

Week 7: Clinical Applications of FoCUS 2 - 31 Dec 2018

Module/Topic	Chapter	Events and Submissions/Topic
Clinical Applications of FoCUS. Case Studies: Part 2.	Lectures and readings on Moodle	

Week 8: Identification of Gross Valvular Abnormalities - 07 Jan 2019

Module/Topic	Chapter	Events and Submissions/Topic
Identification of Gross Valvular Abnormalities. Normal vs. suspicious.	Lectures and readings on Moodle	**Zoom Tutorial** on Monday 7th January 2019 at 7.30 pm AEST. Via a Zoom collaboration, students will each **present one case as a part of their Portfolio Assessment**. Please make sure patient privacy is adhered to. **Residence School 2** on Friday 11th January 2018 at CQUniversity Perth Campus - 9 am to 4 pm.

Week 9: Identification of Intracardiac Masses. - 14 Jan 2019

Module/Topic	Chapter	Events and Submissions/Topic
Identification of Intracardiac Masses. Normal vs. suspicious.	Lectures and readings on Moodle	

Week 10: Identification of Signs of Chronic Heart Disease - 21 Jan 2019

Module/Topic	Chapter	Events and Submissions/Topic
Identification of Signs of Chronic Heart Disease. Using FoCUS to identify acute vs. chronic cardiac disease**.**	Lectures and readings on Moodle	**Zoom Tutorial** on Monday 21st January 2019 at 7.30 pm AEST. Via a Zoom collaboration, students will each **present one case as a part of their Portfolio Assessment**. Please make sure patient privacy is adhered to.

Week 11: Clinical Applications of FoCUS 3 - 28 Jan 2019

Module/Topic	Chapter	Events and Submissions/Topic
Clinical Applications of FoCUS. Case Studies: Part 3.	Lectures and readings on Moodle	

Week 12: Review - 04 Feb 2019

Module/Topic	Chapter	Events and Submissions/Topic
Review of unit content. Assessment preparation.	Lectures and readings on Moodle	**Residence School 3** on Friday 08th February 2019 at CQUniversity Perth Campus - 9 am to 4 pm. **Clinical competency assessment in bedside cardiac ultrasound for point of care (PoCUS)** Due: Week 12 Friday (8 Feb 2019) 4:00 pm AEST **Portfolio (including case presentations)** Due: Week 12 Friday (8 Feb 2019) 9:00 am AEST

Residential schools

Module/Topic	Chapter	Events and Submissions/Topic
There are 3 compulsory residential schools in this unit. They are held at the CQUniversity Perth Campus on Fridays of Week 2, 8 and 12. **Residential School 1:** Friday 16/11/2018 9 am to 4 pm. This will cover a revision of science and instrumentation of ultrasound, image optimisation, normal cardiac anatomy, physiology, and electrophysiology. There will be live scanning on volunteers. **Residential School 2:** Friday 11/01/2019 9 am to 4 pm. This will cover the evaluation of LV and RV and practice of FoCUS protocols. There will be live scanning on volunteers. **Residential School 3:** Friday 08/02/2019 9 am to 4 pm. This will include the clinical competency assessment.		

Term Specific Information

It is essential that participating students collect cases for presentation and discussion, this will be the portfolio component of assessment.
While there is a didactic and practical element to the unit unless the student actively participates in the collection of his/her own scans they will not gain the maximum benefit of this unit.
The unit coordinator for MED20014 is **Dr. Aamer Aziz,** located at Mackay campus and **Ashley Spermon,** located on Brisbane campus (relocating to Sydney campus in January 2019).
The best way to contact Aamer is by email at a.aziz@cqu.edu.au (07 4940 7478) and Ashley is a.spermon@cqu.edu.au Aamer and Ashley may be busy in the labs on certain days, so please leave a message or email so that they can call you back.
Access to the internet is required to undertake this unit, as unit materials, tutorials and updates will be provided via Moodle, email, and Zoom.
Resources will include access to relevant websites, activities, and readings provided. To give yourself the best chance of success with this course please ensure that you undertake all the readings and activities.
Attendance at tutorials is recommended (recordings of these will be made available on Moodle).
The residential clinical skills labs are mandatory and will only be held in Perth. Non-attendance must be documented with a Medical Certificate or equivalent.
As this is a 6 credit point unit, you are expected to spend on average 12.5 hours each week on study activities for this unit.
This time includes:

- Watching recorded lectures
- Creating study notes to meet weekly learning objectives using lectures and readings
- Researching and working on your assessment
- Attending the residential schools

Discussions about unit content, assessment, and clinical competency tests are provided in the tutorials.
In order to pass this unit, you must attain at least 50% overall and meet the minimum mark of 50% in each assessment task.
Dr. Aamer Aziz (MBBS, MSc (Nuc Med), PhD (Radiology), GradDipMedSonography, AMS) has worked extensively as a radiologist, nuclear medicine specialist and sonographer in Australia and internationally. He holds a PhD in medical imaging as well. He is a Senior Lecturer in Medical Sonography at CQU and is the Head of Course for postgraduate sonography. He is also a supervisor for higher education degrees. His areas of interest include developing new technologies in augmented and virtual reality, developing intelligent radiology systems and remote radiology teaching. His hobbies include playing tennis and cricket, riding motorbikes, flying and travel.
Ashley Spermon (BScApp(HMS), GradDipCardiacUlt) has worked in the cardiac field in Australia, Canada and the United Kingdom. Ashley is a Lecturer of Echocardiography and Cardiac Physiology at CQUniversity, and is registered with the Australian Sonographers Accreditation Registry (ASAR). Ashley will be assisting Dr. Aziz in teaching the cardiac ultrasound component of this unit.

Assessment Tasks

1 Clinical competency assessment in bedside cardiac ultrasound for point of care (PoCUS)

Assessment Type
Written Assessment

Task Description
As a clinician you come across difficult decision making in your everyday professional life. Ultrasound is a modality that aids your clinical decision making as it is readily available, cheap, accessible and portable, with fairly good diagnostic accuracy. However, it is operator dependent and training in adequate use of this technology is of paramount importance.
The clinical competency assessment evaluates student proficiency in performing a FoCUS protocol on a live patient/volunteer. The assessment will look for the students ability in*:

- the appropriate use of the ultrasound machine
- the ability to obtain standard FoCUS views
- critical evaluation of reliably interpretable images
- identification of cardiac chambers and structures

- pattern recognition of structural abnormalities and pathology
- clinical integration of ultrasound findings
- the use of ultrasound information in guide patient management

This assessment is to be undertaken as an individual. As with all other university examinations, colluding with other students on non-group work tasks is considered academic misconduct and may lead to action being taken by the Deputy Dean of Learning and Teaching.
* International Evidence-Based Recommendations for Focused Cardiac Ultrasound, JASE, July 2014

Assessment Due Date
Week 12 Friday (8 Feb 2019) 4:00 pm AEST
This assessment will be done at the 3rd residential school

Return Date to Students
Exam Week Friday (15 Feb 2019)

Weighting
Pass/Fail

Minimum mark or grade
Pass/Fail

Assessment Criteria
The student will be assessed on their ability in:

- Safe practice: patient care, obtaining consent, following safe techniques including infection control practices
- Appropriate use of the ultrasound machine: set up of the ultrasound machine, selection of appropriate settings, verbally indicate what machine settings can be manipulated to optimise image quality (e.g. frequency and gain), input patient identification data, save appropriate images, end the study, clean the machine
- Ability to obtain standard FoCUS views: correct imaging windows for the FoCUS protocol with on-axis images from all required sonographic windows (subcostal four chamber, subcostal short axis at inferior vena cava with sniff test, parasternal long axis, parasternal short axis at mid left ventricle, apical four chamber)
- Critical evaluation of reliably interpretable images
- Identification of cardiac chambers and structures

A detailed marking rubric and assessment sheet is available on the Moodle site.
This is a pass/fail assessment and you must pass this assessment in order to pass the unit.

Referencing Style

- Vancouver

Submission
Offline

Learning Outcomes Assessed

- Evaluate the benefits and limitations of using diagnostic transthoracic echocardiography in emergency or point of care (PoC) medicine
- Apply safe transthoracic echocardiography techniques to generate optimised diagnostic images of the heart and great vessels
- Integrate transthoracic echocardiography images into the clinical decision making process and patient management.

Graduate Attributes

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

2 Portfolio (including case presentations)

Assessment Type
Portfolio

Task Description
Ultrasound is a practical health profession, hence practical experience is vital to being able to develop the skills required to acquire and optimise an image. The clinical portfolio serves as a record of the experience that students have obtained during the unit.

You are required to collect 25 cases (in different patients) of bedside cardiac ultrasound during the term (from 5th November 2018). You must have partly or completely scanned these patients yourself under the supervision of your clinical supervisor. Each case must be reviewed and signed by your clinical supervisor and will be categorised into one of the following studies:

- left ventricular (LV) study
- right ventricular (RV) study
- volume status study
- identification of pericardial effusion +/- tamponade
- identification of gross chronic heart disease
- identification of gross valvular abnormality
- identification of intracardiac mass.

By the final residential school, each student will have a minimum of twenty-five full FoCUS cases in their portfolio. This will include a mix of cases in different patients (as outlined in portfolio template - available on Moodle site) to ensure exposure to a range of pathology and enhance understanding of FoCUS applications and limitations.
Students will bring their clinical portfolio with them to the residential school for review. This will include a hard copy of the portfolio template duly filled in and signed by the student and the supervisor, and a thumb drive containing all images obtained in each study. The thumb drive will be retained for marking. Please make sure that patient privacy is adhered to by de-identifying all images.
As a component of this assessment, each student will present a minimum of one full FoCUS study from their clinical portfolio at each interactive ZOOM session (19th November 2018, 10th December 2018, 7th January 2019, 21st January 2019). Please make sure that patient privacy is adhered to by de-identifying all images.

Assessment Due Date
Week 12 Friday (8 Feb 2019) 9:00 am AEST
Portfolio need to brought to final residence school for assessment

Return Date to Students
Exam Week Friday (15 Feb 2019)
The portfolio will be reviewed following the residential school with feedback provided the following week

Weighting
Pass/Fail

Minimum mark or grade
Pass/Fail

Assessment Criteria
All cases will be assessed for:

- Appropriate indication for FoCUS
- Completeness of FoCUS protocol
- Image quality
- Review by Clinical Supervisor
- Self report by clinician (via ZOOM collaboration)
- Accuracy of self report

A detailed marking rubric is available on the unit Moodle site.

Referencing Style

- Vancouver

Submission
Offline

Submission Instructions
Please bring a hard copy of the portfolio template duly filled in and signed by the student and the supervisor, and a thumb drive containing all images obtained in each study.

Learning Outcomes Assessed

- Evaluate the benefits and limitations of using diagnostic transthoracic echocardiography in emergency or point of care (PoC) medicine
- Apply safe transthoracic echocardiography techniques to generate optimised diagnostic images of the heart and great vessels
- Integrate transthoracic echocardiography images into the clinical decision making process and patient management.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility
- Leadership

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