



# ECHO11002 Cardiac Structure and Function

## Term 2 - 2023

Profile information current as at 24/04/2024 02:40 am

All details in this unit profile for ECHO11002 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

Accurate assessment of cardiac function requires comprehensive knowledge of anatomy, embryology, and physiology of the heart, lungs and surrounding structures. You will develop familiarity with the spatial relationship of thoracic structures and the heart. This unit exposes you to data acquired from multiple imaging modalities, including angiography, electrocardiograms (ECG), and echocardiography. You will explore normal ECG complexes, learn how a standard 12-lead ECG is generated, and learn to competently perform a standard 12-lead ECG. Attendance at a residential school is a requirement of this unit.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 1*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Pre-requisite: Students must be enrolled in CV69 Bachelor of Echocardiography (Cardiac Physiology)/Graduate Diploma of Echocardiography AND Co-requisite: BMSC11002 Human Body Systems 2 or BMSC11011 Human Anatomy and Physiology 2

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 - 2023

- Mixed Mode

### 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 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: 60%

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

Weighting: Pass/Fail

#### 3. **Online Test**

Weighting: 40%

### 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 Evaluation

**Feedback**

There were low rating for Useful Feedback.

**Recommendation**

Following each quiz, a more in-depth analysis of the quiz responses will be conducted identifying the questions that students struggled with the most, whilst maintaining question pool integrity. The tutorial following the quiz will dedicate a significant portion to covering content relating to the areas that needed the most improvement.

#### Feedback from Residential School Feedback Form

**Feedback**

Students enjoyed the practical scanning component during the residential school and requested more scanning time in future deliveries.

**Recommendation**

Practical activities will continue to be developed to reinforce concurrent theoretical teachings.

#### Feedback from Unit Coordinator Reflection

**Feedback**

There was poor tutorial engagement.

**Recommendation**

Importance of tutorial engagement will be reinforced in the E-unit profile 'term specific advice' and through forum posts upon term commencement. Case studies providing clinical contextualisation, guest lectures, and assessment focussed topics will be explored to foster tutorial engagement.

## Unit Learning Outcomes

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

1. Describe the anatomy and physiology of the cardiovascular and respiratory system
2. Identify anatomical structures on diagrams and medical images of the thorax and cardiovascular system
3. Describe the embryological development of the cardiovascular system
4. Explain the formation of an electrocardiogram (ECG) complex, and its representation on a normal 12-lead ECG
5. Perform a 12-lead ECG.

Linked to National and International Standards

1. ASAR Accreditation Standards for Cardiac Sonography - critical practice Unit 8 - Cardiac
2. European Association of Cardiovascular Imaging Core Syllabus
3. American Registry for Cardiac Sonography Core Syllabus

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

| Assessment Tasks              | Learning Outcomes |   |   |   |   |
|-------------------------------|-------------------|---|---|---|---|
|                               | 1                 | 2 | 3 | 4 | 5 |
| 1 - Online Quiz(zes) - 60%    | •                 | • |   | • |   |
| 2 - Practical Assessment - 0% |                   |   |   |   | • |
| 3 - Online Test - 40%         | •                 | • | • |   |   |

### Alignment of Graduate Attributes to Learning Outcomes

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

## Textbooks and Resources

### Textbooks

ECHO11002

#### Prescribed

**Echocardiography: The Normal Examination and Echocardiographic Measurements**

Edition: 3rd (2017)

Authors: Bonita Anderson

Echotext  
AUS  
ISBN: 0992322219  
Binding: Hardcover  
ECHO11002

### **Prescribed**

#### **Introduction to the 12-Lead ECG: The Art of Interpretation**

Edition: 2nd (2015)  
Authors: Tomas Garcia  
Jones & Bartlett Learning  
Burlington , MA , USA  
ISBN: 9781284040883  
Binding: Paperback  
ECHO11002

### **Supplementary**

#### **Before We Are Born: Essentials of Embryology and Birth Defects**

Edition: 10th (2019)  
Authors: Keith Moore, T. V. N. Persaud, Mark Torchia  
Elsevier  
Philadelphia , PA , USA  
ISBN: 9780323608503  
Binding: eBook  
ECHO11002

### **Supplementary**

#### **Kern's Cardiac Catheterization Handbook**

Edition: 7th (2019)  
Authors: Paul Sorajja, Michael J Lim and Morton J. Kern.  
Elsevier  
Philadelphia , PA , USA  
ISBN: 9780323597739  
Binding: eBook  
ECHO11002

### **Supplementary**

#### **Pathophysiology of Heart Disease: A Collaborative Project of Medical Students and Faculty**

Edition: 6th (2015)  
Authors: Leonard S. Lilly  
Wolters Kluwer Health  
Hagerstown , MD , USA  
ISBN: 9781451192759  
Binding: eBook

[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

**Angie Gao** Unit Coordinator  
[y.gao@cqu.edu.au](mailto:y.gao@cqu.edu.au)

## Schedule

### Week 1 - 10 Jul 2023

| Module/Topic    | Chapter           | Events and Submissions/Topic |
|-----------------|-------------------|------------------------------|
| Cardiac anatomy | See eReading List |                              |

### Week 2 - 17 Jul 2023

| Module/Topic       | Chapter           | Events and Submissions/Topic |
|--------------------|-------------------|------------------------------|
| Cardiac physiology | See eReading List |                              |

### Week 3 - 24 Jul 2023

| Module/Topic                       | Chapter           | Events and Submissions/Topic  |
|------------------------------------|-------------------|---|
| Respiratory anatomy and physiology | See eReading List | <b>Online Quiz 1</b> opens at 08:00 am AEST on Monday 24th of July and closes at 08:00 pm AEST on Tuesday 25th of July. |

### Week 4 - 31 Jul 2023

| Module/Topic     | Chapter           | Events and Submissions/Topic |
|------------------|-------------------|------------------------------|
| Echocardiography | See eReading List |                              |

### Week 5 - 07 Aug 2023

| Module/Topic          | Chapter           | Events and Submissions/Topic  |
|-----------------------|-------------------|---|
| Electrocardiography 1 | See eReading List | <b>Online Quiz 2</b> opens at 08:00 am AEST on Monday 7th of August and closes at 08:00 pm AEST on Tuesday 8th of August. |

### Vacation Week - 14 Aug 2023

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

### Week 6 - 21 Aug 2023

| Module/Topic          | Chapter           | Events and Submissions/Topic |
|-----------------------|-------------------|------------------------------|
| Electrocardiography 2 | See eReading List |                              |

### Week 7 - 28 Aug 2023

| Module/Topic              | Chapter           | Events and Submissions/Topic  |
|---------------------------|-------------------|---|
| Cardiac catheterisation 1 | See eReading List | <b>Online Quiz 3</b> opens at 08:00 am AEST on Monday 28th of August and closes at 08:00 pm AEST on Tuesday 29th of August. |

### Week 8 - 04 Sep 2023

| Module/Topic              | Chapter           | Events and Submissions/Topic |
|---------------------------|-------------------|------------------------------|
| Cardiac catheterisation 2 | See eReading List |                              |

### Week 9 - 11 Sep 2023

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

Embryology 1 See eReading List

**Online Quiz 4** opens at 08:00 am AEST on Monday 11th of September and closes at 08:00 pm AEST on Tuesday 12th of September.  
**ECG Practical Assessment** scheduled during the mandatory residential school in Week 9 on Thursday 14th and Friday 15th of September.

#### Week 10 - 18 Sep 2023

| Module/Topic | Chapter           | Events and Submissions/Topic |
|--------------|-------------------|------------------------------|
| Embryology 2 | See eReading List |                              |

#### Week 11 - 25 Sep 2023

| Module/Topic | Chapter           | Events and Submissions/Topic |
|--------------|-------------------|------------------------------|
| Embryology 3 | See eReading List |                              |

#### Week 12 - 02 Oct 2023

| Module/Topic | Chapter | Events and Submissions/Topic   |
|--------------|---------|--|
| Revision     |         | <b>Online Test</b> opens at 08:00 am AEST on Thursday 5th of October and closes at 08:00 pm AEST on Friday 6th of October. |

#### Review/Exam Week - 09 Oct 2023

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

#### Exam Week - 16 Oct 2023

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

## Term Specific Information

**The Unit Coordinator for ECHO11002 is Angie Gao.** The best method to contact the Unit Coordinator is by email (y.gao@cqu.edu.au). Please put the unit code ECHO11002 and your name in the subject title to expedite a reply to your email. Course delivery and laboratory commitments for university staff are ongoing, therefore it is best to email and request a scheduled meeting (telephone, Zoom, office) if required. Angie's work days are Monday, Tuesday and Wednesday and she is based on Sydney Campus.

**The first point of contact is the ECHO11002 Q&A forum.** Prioritising the Moodle forums allows the entire ECHO11002 cohort to benefit from questions and answers. All Moodle forums are monitored and responses will be provided in a timely manner. If your query is personal, please email the Unit Coordinator. Students are encouraged to review the CQUniversity Student Charter and apply appropriate conduct in-person and on-line.

**ECHO11002 consists of weekly lectures (recorded), readings, tutorials (live), and a mandatory residential school.** Lectures, readings, and tutorial details are posted on the ECHO11002 Moodle. The mandatory residential school must be attended at your campus of enrolment in Week 9 on Thursday 14th and Friday 15th of September (further details posted on the ECHO11002 Moodle).

**ECHO11002 has prescribed textbooks.** These textbooks will also be prescribed in subsequent units within CV69. Please review the eReading List before purchasing your hardcopy textbooks.

**To give yourself the best chance of success in ECHO11002, please ensure that you review all lectures, attend tutorials, complete readings and participate in all activities that are provided to you. You are expected to spend an average of 12.5 hours each week on ECHO11002 studies**

## Assessment Tasks

# 1 Online Quizzes

## Assessment Type

Online Quiz(zes)

## Task Description

The ability to describe cardiac and respiratory anatomy, physiology, and associated diagnostic modalities is crucial in a professional cardiac diagnostic role.

## Task Requirements

Respond to a series of questions to demonstrate knowledge of cardiac, respiratory, and associated diagnostic concepts, within the prescribed time frame. Questions are drawn from lectures, readings, and tutorials. The content covered in each Online Quiz is as follows:

1. Online Quiz 1 (Week 3): Cardiac anatomy and physiology
2. Online Quiz 2 (Week 5): Respiratory and physiology, and echocardiography
3. Online Quiz 3 (Week 7): Electrocardiography
4. Online Quiz 4 (Week 9): Cardiac catheterisation

To successfully complete the Online Quizzes, students must:

- Access the Online Quizzes via ECHO11002 Moodle between 08:00 am AEST on Monday and 08:00 pm AEST on Tuesday of Week 3, 5, 7, and 9;
- Attempt each Online Quiz only once (once started, the Online Quiz cannot be paused or restarted);
- Submit the responses to complete each Online Quiz (Moodle will automatically close and submit responses once the allocated time has elapsed);
- Prepare personal notes and have a calculator when attempting each Online Quiz;
- Undertake each Online Quiz as an individual (questions are drawn from a question pool to allow a different experience for each student, with any incidences of academic misconduct to be met with action from the Deputy Dean of Learning and Teaching);
- Notify TASAC and the Unit Coordinator immediately if technical issues arise during any Online Quiz (i.e. email TASAC at [tasac@cqu.edu.au](mailto:tasac@cqu.edu.au) with a screen shot of the issue, and CC the Unit Coordinator at [y.gao@cqu.edu.au](mailto:y.gao@cqu.edu.au)); and
- Undertake each Online Quiz during TASAC operating hours where possible, to expedite the resolution of any technical issues.

In the absence of an approved extension, the Online Quiz cannot be completed at a later time.

## Number of Quizzes

4

## Frequency of Quizzes

## Assessment Due Date

Online Quiz 1 (15%) opens at 08:00 am AEST on Monday 24th of July and closes at 08:00 pm AEST on Tuesday 25th of July; Online Quiz 2 (15%) opens at 08:00 am AEST on Monday 7th of August and closes at 08:00 pm AEST on Tuesday 8th of August; Online Quiz 3 (15%) opens at 08:00 am AEST on Monday 28th of August and closes at 08:00 pm AEST on Tuesday 29th of August; Online Quiz 4 (15%) opens at 08:00 am AEST on Monday 11th of September and closes at 08:00 pm AEST on Tuesday 12th of September.

## Return Date to Students

Students will receive feedback within two (2) weeks of the closing date of each quiz.

## Weighting

60%

## Minimum mark or grade

50%

## Assessment Criteria

Grading is based on the student's ability to:

- Interpret presented data and images;
- Describe concepts clearly and concisely;
- Use appropriate terminology and descriptors; and
- Apply correct spelling and grammar.



## Referencing Style

- [Vancouver](#)

## Submission

Online

## Submission Instructions

Access and submit the Online Quizzes via ECHO11002 Moodle.

## Learning Outcomes Assessed

- Describe the anatomy and physiology of the cardiovascular and respiratory system
- Identify anatomical structures on diagrams and medical images of the thorax and cardiovascular system
- Explain the formation of an electrocardiogram (ECG) complex, and its representation on a normal 12-lead ECG

## 2 ECG Practical Assessment

### Assessment Type

Practical Assessment

### Task Description

The ability to perform a 12-lead ECG is crucial in a professional cardiac diagnostic role.

### Task Requirements

1. Perform a 12-lead ECG.

To successfully complete the ECG Practical Assessment, students must:

- Attend the mandatory residential school in Week 9;
- Practice performing an ECG during the residential school;
- Attempt the ECG Practical Assessment during the residential school;
- Perform a 12-lead ECG within 20 minutes;
- Re-attempt the ECG Practical Assessment once if required; and
- Pass the ECG Practical Assessment to pass ECHO11002.

In the absence of an approved extension, the ECG Practical Assessment can not be completed at a later time.

### Assessment Due Date

The ECG Practical Assessment must be completed during the mandatory residential school in Week 9.

### Return Date to Students

Students will receive feedback during the mandatory residential school in Week 9.

### Weighting

Pass/Fail

### Assessment Criteria

A detailed [ECG practical ARC tool](#) is available on ECHO11002 Moodle. This is a pass/fail assessment. All criteria outlined must be achieved to pass this assessment.

- Perform appropriate hand hygiene, patient identification, patient consent and maintain patient modesty;
- Satisfactory skin preparation;
- Satisfactory lead placement identification and attachment;
- Obtain interpretable and complete ECG tracing;
- Correctly optimise machine settings and perform basic troubleshooting.

## Referencing Style

- [Vancouver](#)

## Submission

Offline

## Submission Instructions

The ECG Practical Assessment must be completed during the mandatory residential school in Week 9.

## Learning Outcomes Assessed

- Perform a 12-lead ECG.

## 3 Online Test

### Assessment Type

Online Test

### Task Description

The ability to describe cardiac and respiratory anatomy, physiology, associated diagnostic modalities, and embryology, is crucial in a professional cardiac diagnostic role.

### Task Requirements

1. Respond to a series of questions to demonstrate knowledge of cardiac, respiratory, associated diagnostic concepts, and embryology within the prescribed time frame. Questions are drawn from lectures, readings, tutorials, and the residential school.

### Task Details

- The Online Test contains 100 marks. Questions will be randomly drawn from a question bank, which will provide each student with a unique experience for the online test. The Online Test question bank will not be released to students in its entirety;
- The Online test is weighted at 40% of the final unit grade;
- The Online Test has a minimum mark of 50/100 to pass;
- The Online Test questions include short answer, multiple choice and image interpretation format;
- The Online Test duration is 130 minutes. This time includes perusal and working time.;
- You may benefit from having a calculator and dictionary available when attempting the Online Test.

To successfully complete the Online Test, students must:

- Access the Online Test via ECHO11002 Moodle at the assigned time;
- Attempt the Online Test once (once started, the Online Test can not be paused or restarted);
- Submit the responses to complete the Online Test (Moodle will automatically close and submit responses once the allocated time has elapsed);
- Prepare personal notes and have a calculator when attempting the Online Test;
- Undertake the Online Test as an individual (questions are drawn from a question pool to allow a different experience for each student, with any incidences of academic misconduct to be met with action from the Deputy Dean of Learning and Teaching);
- Notify TASAC and the Unit Coordinator immediately if technical issues arise during the Online Test (i.e. email TASAC at [tasac@cqu.edu.au](mailto:tasac@cqu.edu.au) with a screen shot of the issue, and Cc the Unit Coordinator at [y.gao@cqu.edu.au](mailto:y.gao@cqu.edu.au)); and
- Undertake the Online Test during TASAC operating hours where possible, to expedite the resolution of any technical issues.

In the absence of an approved extension, the Online Test can not be completed at a later time.

### Assessment Due Date

Online Test (40%) opens at 08:00 am AEST on Thursday 5th of October and closes at 08:00 pm AEST on Friday 6th of October.

### Return Date to Students

Individual results will be published within two (2) weeks of the due date

### Weighting

40%

### Minimum mark or grade

50%

### Assessment Criteria

Grading is based on the student's ability to:

- Interpret presented data and images;
- Describe concepts clearly and concisely;
- Use appropriate terminology and descriptors; and
- Apply correct spelling and grammar.

## Referencing Style

- [Vancouver](#)

## Submission

Online

## Submission Instructions

Access and submit the Online Test via ECHO11002 Moodle.

## Learning Outcomes Assessed

- Describe the anatomy and physiology of the cardiovascular and respiratory system
- Identify anatomical structures on diagrams and medical images of the thorax and cardiovascular system
- Describe the embryological development of the cardiovascular system

## 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