BMSC13006 *Advanced Neurophysiological Measurement*

Term 1 - 2024

Profile information current as at 12/05/2024 12:06 am

All details in this unit profile for BMSC13006 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

On completion of this unit, students should be able to relate neurophysiology and pathophysiology to advanced clinical tests of neurological function including electroencephalography (EEG), nerve conduction studies (NCS) and evoked potential measurements. Therapeutic interventions for epilepsy and nerve entrapment will be discussed. Students will review all aspects of patient interaction including patient safety, legal and ethical issues and communication.

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

Pre-Requisite: BMSC12007 Neurological Physiology and Measurement
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 - 2024

- Online
- Rockhampton

Attendance Requirements

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

Website

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

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**
Weighting: 60%
2. **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 SUTE

Feedback
Students found that the recordings were occasionally a little challenging to hear clearly unless headphones were used.

Recommendation
Ensure that the sound quality of the recordings is consistently clear and audible by conducting checks before recording.

Feedback from SUTE

Feedback
Students suggested introducing clinical scenarios earlier in the course content.

Recommendation
Case studies will be introduced in the tutorial within the initial weeks of the unit.

Feedback from SUTE

Feedback
Students perceived the learning experience from the clinical cases as highly valuable and meaningful.

Recommendation
Continue delivering lectures and tutorials that incorporate real-life contexts and practical applications within the field.

Unit Learning Outcomes

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

1. Understand patient safety, legal and ethical issues in the clinical neurophysiology environment
2. Explain electrophysiological recording and calibration processes
3. Justify montage selection to maximise diagnostic capability
4. Differentiate normal, artefactual and pathological EEG recordings
5. Evaluate the neurosurgical treatment of epilepsy and utility of intraoperative monitoring in EEG and spinal cord realignment
6. Justify somatosensory, visual and brainstem auditory evoked potential measurement including computer averaging techniques
7. Understand normal and abnormal waveform characteristics in evoked potential measurement, nerve conduction studies and electromyography.

Per NPC990

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	4	5	6	7
1 - Written Assessment - 60%		•	•	•	•		

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7
2 - Online Test - 40%	•	•	•	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

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

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 60%	•	•	•	•		•				
2 - Online Test - 40%	•	•	•	•		•	•	•		

Textbooks and Resources

Textbooks

BMSC13006

Prescribed

Handbook on EEG Interpretation
3rd edition (2021)
Authors: Tatum, WO
Springer Publishing
New York , NY , USA
ISBN: 9780826147080
Binding: Paperback
BMSC13006

Prescribed

Primer of EEG with a Mini-Atlas
2nd edition (2015)
Authors: Rowan, J & Tolunsky, E
Elsevier Health Sciences
Philadelphia , PA , USA
ISBN: 9780323353878
Binding: Paperback

Additional Textbook Information
The prescribed textbook can be accessed online at the CQUniversity Library website. Access can be limited, so if you prefer your own copy, you can purchase either paper or eBook versions at the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code).

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: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Romeo Batacan Unit Coordinator
r.j.batacan@cqu.edu.au

Schedule

Week 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Fundamentals of Neurophysiology	Chapter 2 (Cooper, Binnie & Billings, eds)	

Week 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic

EEG Technology	Chapter 6 (Cooper, Binnie & Billings, eds) Chapter 1 (Rowan)	

Week 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
EEG Phenomenology and Activation Procedures	Chapter 7 & 8 (Cooper, Binnie & Billings, eds) Chapter 2 & 3 (Rowan) Chapter 1 (Tatum)	Tutorial discussion covering Weeks 1-3 content

Week 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
EEG Phenomenology and Activation Procedures	Chapter 7 (Cooper, Binnie & Billings, eds) Chapter 4 & 5 (Rowan) Chapter 2 & 3 (Tatum)	

Week 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Intraoperative Monitoring, Ambulatory and Video Monitoring	Chapter 10 & 14 (Cooper, Binnie & Billings, eds)	Tutorial discussion covering Weeks 3-4 content

Vacation Week - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Evoked Potentials	Chapter 2, 15 (Cooper, Binnie & Billings, eds)	

Week 7 - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Evoked Potentials	Chapter 2, 15 (Cooper, Binnie & Billings, eds)	Tutorial discussion covering Weeks 5-7 content

Week 8 - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Measurement of Nerve Conduction	Chapter 4 (Cooper, Binnie & Billings, eds)	**Written assessment** Due: Week 8 Monday (29 Apr 2024) 11:45 pm AEST

Week 9 - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Electromyography	Chapter 5 (Cooper, Binnie & Billings, eds)	

Week 10 - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Patient Safety, Legal and Ethical Issues	Chapter 3 & 16 (Cooper, Binnie & Billings, eds)	Tutorial discussion covering Weeks 8-10 content

Week 11 - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Clinical Neurophysiology	Moodle resource	

Week 12 - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic

Revision

Review/Exam Week - 03 Jun 2024		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
		Online test Due: Review/Exam Week Friday (7 June 2024) 9:00 am AEST

Exam Week - 10 Jun 2024		
Module/Topic	**Chapter**	**Events and Submissions/Topic**

Term Specific Information

The unit coordinator for BMSC13006 Advanced Neurophysiological Measurement is Dr. Romeo Batacan Jr. You can contact Dr. Batacan via the Moodle forum or through email (r.j.batacan@cqu.edu.au).
BMSC13006 Advanced Neurophysiological Measurement follows directly from BMSC12007 Neurological Physiology and Measurement and provides important scaffolding to clinical tests of neurological function that you were introduced to in year 2 of your study.
The unit has a major focus on EEG, nerve conduction studies and evoked potential measurements. Work placement experience will provide you the opportunity to apply the knowledge you learn from this unit.

Assessment Tasks

1 Written assessment

Assessment Type
Written Assessment

Task Description
As a clinical measurement scientist you will be responsible for conducting various clinical neurophysiological investigations and interpreting the results. You will be presented with a clinical case scenario of a patient with a neurological condition and will be required to answer a series of questions related to the clinical case. This assessment is designed to assess your understanding of EEG, interpretation of data obtained from electrophysiological recordings and application of knowledge to a clinical environment. Details of the case study can be found on Moodle.

Assessment Due Date
Week 8 Monday (29 Apr 2024) 11:45 pm AEST

Return Date to Students
Week 10 Monday (13 May 2024)

Weighting
60%

Minimum mark or grade
In order to pass this unit, you must achieve 50% of the available marks for this assessment item.

Assessment Criteria
The assessment will be based on the criteria of knowledge of theory, rationalisation and justification of elements of knowledge, interpretation of data, presentation of information and referencing. A detailed marking rubric will be available on Moodle.
Please note that all late assessments will be penalized 5% per calendar day unless an application for extension has been approved.
All extension applications must be made through the extension request system on Moodle. Assessments that have been submitted more than 20 calendar days late will not be marked unless an extension request has been approved.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
To be uploaded on Moodle and submitted as a Word document.

Learning Outcomes Assessed

- Explain electrophysiological recording and calibration processes
- Justify montage selection to maximise diagnostic capability
- Differentiate normal, artefactual and pathological EEG recordings
- Evaluate the neurosurgical treatment of epilepsy and utility of intraoperative monitoring in EEG and spinal cord realignment

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Online test

Assessment Type
Online Test

Task Description
You will be required to complete an end of term online test. This online test will assess all content covered throughout the term. The test will be composed of different question types that will assess your understanding and application of key concepts discussed in the unit. Please see Moodle site for more details.

Assessment Due Date
Review/Exam Week Friday (7 June 2024) 9:00 am AEST
Available for a 12-hour period during the Exam week

Return Date to Students

Marks will be available on 21 June 2024.

Weighting
40%

Minimum mark or grade
In order to pass this unit, you must achieve 50% of the available marks for this assessment item.

Assessment Criteria
Questions will be marked as per marking scheme. The maximum score that can be achieved from this assessment item equals 40% of the total unit marks.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Understand patient safety, legal and ethical issues in the clinical neurophysiology environment
- Explain electrophysiological recording and calibration processes
- Justify montage selection to maximise diagnostic capability
- Differentiate normal, artefactual and pathological EEG recordings
- Evaluate the neurosurgical treatment of epilepsy and utility of intraoperative monitoring in EEG and spinal cord realignment
- Justify somatosensory, visual and brainstem auditory evoked potential measurement including computer averaging techniques
- Understand normal and abnormal waveform characteristics in evoked potential measurement, nerve conduction studies and electromyography.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem