



# BMSC13016 Advanced Histopathology and Cytopathology

## Term 1 - 2024

Profile information current as at 12/05/2024 07:07 pm

All details in this unit profile for BMSC13016 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

Identification of the characteristic histopathological and cytopathological features of human organ systems and the hallmarks of pathological dysregulation of tissue organisation is fundamental to the work of the medical laboratory scientist. In this unit you will study normal and abnormal histopathological features of a range of tissues along with normal and abnormal cytopathological features of a range of cells. The relationship between cellular injury, immune response, tumour formation, infection and pathological dysregulation of tissue organisation will be explored in relation to clinical cases you may encounter. You will be provided with the knowledge and skill to perform microscopic examination of tissues and cells. Case studies will include new developments in immunohistochemistry and fluorescence imaging. Attendance at residential school practical activities in Rockhampton is a requirement of this unit.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Prerequisites BMSC12001 Histological and Cytological Techniques

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

- Mixed Mode
- 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).

### 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. **Practical Assessment**

Weighting: 40%

#### 2. **Case Study**

Weighting: 20%

#### 3. **Examination**

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 and in-class feedback

**Feedback**

Students found the Moodle Lessons format to be conducive to engaging with the material.

**Recommendation**

Maintain the flipped-classroom format of teaching.

#### Feedback from SUTE and self reflection

**Feedback**

Students would like to have a written copy of the Moodle Lessons material.

**Recommendation**

The powerpoint slides were provided to the students in addition to the Moodle Lessons, but their location on Moodle may not have been obvious. In future offerings, it will be reiterated during the first week of classes where weekly content can be found in the unit.

#### Feedback from SUTE and face-to-face feedback

**Feedback**

A thoroughly enjoyable unit with a well structured residential school.

**Recommendation**

Maintain the format of the unit and residential school.

## Unit Learning Outcomes

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

1. Distinguish histopathological and cytopathological specimens according to body system, pathology and artefactual morphology
2. Analyse the features of inflammatory disease processes and the range of tissue responses
3. Perform techniques and explain the principles, mechanisms and requirements of use for special stain procedures and specialised fixation techniques
4. Describe the neoplastic process, grading systems for staging malignant neoplasms and correlation with gene expression
5. Discuss the principles, mechanisms, requirements and the application of use for special stain procedures and specialised fixation techniques of new molecular and hybridisation techniques in histology and cytology.

The learning outcomes achieved are linked to the objectives of the accrediting body, Australian Institute of Medical and Clinical Scientists (AIMS).

## 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	5
1 - Practical Assessment - 40%	•		•		
2 - Case Study - 20%		•		•	•
3 - Examination - 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

BMSC13016

#### Prescribed

##### Functional Histology

Edition: Second (2010)

Authors: Jeffrey B Kerr

Elsevier

Chatswood , NSW , Australia

ISBN: 9780729538374

Binding: Paperback

BMSC13016

#### Prescribed

##### Wheater's Functional Histology A Text and Colour Atlas

Edition: Sixth (2014)

Authors: Young, B., O'Dowd, G., Woodford, P.

Elsevier

Philadelphia , PA , USA

ISBN: 978-0-7020-4747-3

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Zoom (both microphone and webcam capability)

## Referencing Style

**All submissions for this unit must use the referencing styles below:**

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Ingrid Christiansen** Unit Coordinator

[i.christiansen@cqu.edu.au](mailto:i.christiansen@cqu.edu.au)

## Schedule

### Module 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
The Cell, Tissue Types and Body Systems	Kerr: 1, 2, 4, 5, 6, 7 and Young et al.:1, 4, 5, 6, 7	Tutorial

### Module 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Injury, Inflammation, Repair, Cell Death and the "-plasias"

No specific readings

Tutorial

### Module 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
The Integumentary and Respiratory Systems	Kerr: 9, 12 and Young et al.: 9, 12	Tutorial

### Module 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
The Digestive System	Kerr: 14, 15 and Young et al.: 14, 15	Tutorial

### Module 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
The Reproductive Systems	Kerr: 18, 19 and Young et al.: 18, 19	Tutorial

### Vacation Week - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Break Week		

### Module 6 - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
The Cardiovascular System and Blood, Endocrine and Lymphatic systems.	Kerr: 3, 8, 11, 17 and Young et al.: 3, 8, 11, 17	Tutorial  <b>Case Study Report</b> Due: Week 6 Friday (19 Apr 2024) 11:45 pm AEST

### Module 7 - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Muscles, Bones and Skeletal Tissue	Kerr: 6, 10 and Young et al.: 6, 10	Tutorial

### Module 8 - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
The Renal and Nervous Systems	Kerr: 16, 7 and Young et al.: 16, 7, 20	Tutorial

### Module 9 - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Diagnostic Cytopathology	Kerr: 1, 2, 18 and Young et al.: 1, 19	Tutorial

### Module 10 - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
		Residential School
Residential School		<b>Practical Portfolio and Workbook</b> Due: Week 10 Wednesday (15 May 2024) 12:00 pm AEST

### Module 11 - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Autopsies, Post Mortems and Quality Assurance		Tutorial

### Revision Module - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Revision		

## Review/Exam Week - 03 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
		Exam will be held during the scheduled exam period. Students will be notified of the date closer to this period.

## Exam Week - 10 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
		Exam will be held during the scheduled exam period. Students will be notified of the date closer to this period.

## Term Specific Information

Your unit coordinator for BMSC13016 Advanced Histopathology and Cytopathology is **Ingrid Christiansen**. You can contact Ingrid using a number of methods:

- The forum on the unit's Moodle site (The forum for this unit is continuously monitored and you can expect a response within 24 hours of posting your question); or
- Through email (i.christiansen@cqu.edu.au); or
- Via telephone on 07 4930 6518.

As the name suggests, this unit will extend your knowledge of histology and cytology, along with some of the pathologies identified in these laboratory spaces. BMSC13016 Advanced Histopathology and Cytopathology is a core unit in one course:

CL10 - Bachelor of Medical Laboratory Science (Honours)

You will be provided an opportunity to explore how to apply the knowledge learned in lecture material in a compulsory residential school. Here you will extend on the microtomy techniques you have already learnt, and begin training in identification of basic tissue types and special stains which are associated with these tissues.

Tutorials are delivered each week via Zoom. Students enrolled in distance delivery mode can also attend the live tutorials using Zoom. These tutorials will also be recorded for the benefit of those students who are unable to attend the live tutorial. During these tutorials, the weekly study questions will be addressed (that are provided to you on the Moodle site). These weekly study questions will help you to apply knowledge learned during the weekly lecture and prepare you for the assessments. You will get the most benefit from the tutorials if you watch the weekly lectures beforehand and attempt the weekly study questions. You are strongly encouraged to participate in tutorials. Weekly revision quizzes are also provided to reinforce the knowledge you have gained from the lectures and to support your learning experience in this unit.

As per Australian educational standards, you are expected to commit 150 hours of engagement to your study of this unit. This is broken down as:

2 - 3 hours per week watching recorded lectures and revising the content through study notes

3 - 4 hours per week completing the weekly study questions and weekly revision quizzes on the unit's Moodle site.

1 - 2 hours per week attending the weekly tutorial and reflecting on your answers to the weekly study questions

3 - 4 hours per week preparing your assessments or studying for your exams

## Assessment Tasks

### 1 Practical Portfolio and Workbook

#### Assessment Type

Practical Assessment

#### Task Description

Over the three days of the residential school / block practical you will perform microtomy, learn how to recognise different tissue types, simulate a Fine Needle Aspirate (FNA) and prepare a series of stains in accordance with instructions in the practical manual. You will be assessed on the quality of those stains by academic staff with expertise in histology. You must achieve a collective minimum of 50% (skills plus theory components) to pass this assessment.

The practical will include:

#### Theory component:

This assessment must be handed to the assessor for marking on completion by the end of day two. This part of the assessment is worth 25% of assessment 2 (or 10% of the overall grade). Items assessed include:

- Identification of ten tissue blocks.
- Completion of the workbook. A series of questions will assess your knowledge and understanding of histology, cytology and histological/cytological technique. It is recommended that you do some pre-reading prior to residential school / block practical.

### **Skills component:**

This assessment must be handed to the assessor for marking on completion, or by midday on day three. This part of the assessment is worth 75% of assessment 2 (or 30% of the overall grade). You must achieve a minimum of 50% of the available marks of this component in order to pass this unit. Items assessed include:

- Microtomy and H&E staining. You will section 10 different blocks of tissue, stain them using H&E staining, and label the slide accordingly.
- Four different special histochemical stains. The stains selected will depend on the type of tissues that can be obtained, full details to perform the stains will be given in the laboratory manual.
- Simulated fine needle aspirate collection followed by preparation of slides and cytology staining.
- Fluorescent staining (either Immunofluorescence (IF) or Fluorescence *in situ* Hybridisation (FISH))

Students who fail to achieve 50% (Pass) on the first attempt of the skills component will be granted a second attempt. The maximum mark for the second attempt will be 50% of the allocated marks. The second attempt will be conducted in the afternoon on day three, prior to the completion of the residential school.

### **Assessment Due Date**

Week 10 Wednesday (15 May 2024) 12:00 pm AEST

The practical portfolio is to be submitted at the completion of the residential school.

### **Return Date to Students**

Week 12 Wednesday (29 May 2024)

### **Weighting**

40%

### **Minimum mark or grade**

50%

### **Assessment Criteria**

Assessment of the slides will be done by academic staff with expertise in histology and cytology. A maximum of seventeen (17) slides will be handed in with a workbook.

### **Skills**

- Microtomy and H&E staining: There will be 5 marks for each produced slide (5 marks per slide x 10 slides = 50 marks in total). These will be handed in at the end of day two for assessment.
- Special stains: There will be 6 marks for each of the stains produced (6 marks per stain x 4 stains = 24 marks in total). These will be handed in by 12:00 midday on day three for assessment.
- Fine needle aspirate collection, preparation of slides and staining will be assessed in this FNA simulation (3 marks per slide x 2 slides = 6 marks in total). These will be handed in at the end of day two for assessment.
- Fluorescent staining (either Immunofluorescence or FISH): one slide will be assessed and marked as a Pass/Fail. This will be handed in at the end of day two for assessment.

### **Theory**

- Identification of 10 tissue blocks (10 marks available). These will be handed in at the end of day 2 for assessment.
- The workbook will be marked against a set of correct answers (10 marks available). These will be handed in by 12:00 midday on day 3 for assessment.

### **Referencing Style**

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

### **Submission**

Offline

### **Learning Outcomes Assessed**

- Distinguish histopathological and cytopathological specimens according to body system, pathology and artefactual morphology
- Perform techniques and explain the principles, mechanisms and requirements of use for special stain procedures and specialised fixation techniques



## 2 Case Study Report

### Assessment Type

Case Study

### Task Description

There are two parts to this assessment task.

**Part 1:** You will be provided with an authentic clinical case study on the Moodle site.

The following information regarding the case will be available to you: clinical presentation, patient history, tissue image(s), and special stain images (if any).

You are then required to answer a series of questions in a Moodle Quiz to obtain further information and test results. This quiz is worth 40% of the marks for this assessment.

**Part 2:** You are then required to write a report (around 1,500 words) using a case study approach describing the pathology observed, aetiology, specific morphological and histopathological characteristics observed that led to the diagnosis, differential diagnosis, treatment options and any recommended further tests. This case report is worth 60% of the marks for this assessment.

Students are permitted (but not required) to use Generative AI for this assessment in the following ways:

- \* Searches and support to increase or verify understanding of concepts. If Generative AI is used in any way, as with all sources, it must be cited as per the CQU Guidelines (Academic Learning Centre).
  - \* As per academic writing requirements and assessment criteria; citations of information should be of the primary source (i.e. statistics returned by AI must be fact-checked and referenced from their original source as well as the AI source).
  - \* Failure to cite primary sources as well as AI sources could be considered breach of academic integrity.
  - \* Your use of Generative AI must be clearly outlined in an appendix as a separate file which includes the prompt used and Generative AI response. Failure to include an appendix may result in academic integrity investigation.
- Guidelines to complete the report, marking rubric and a template will be available on the Moodle site.

### Assessment Due Date

Week 6 Friday (19 Apr 2024) 11:45 pm AEST

Part 1: Quiz answers automatically saved in Moodle; and Part 2: The case report to be submitted online.

### Return Date to Students

Week 8 Friday (3 May 2024)

### Weighting

20%

### Minimum mark or grade

50%

### Assessment Criteria

The written assessment task is marked according to how well you have met the specific requirements and in accordance with the criteria outlined below:

**Presentation:** Clarity of purpose and coherence of expression (spelling, grammar, syntax); clear and organised flow of information.

**Abstract:** Provides a clear overview and overall summary of the case study.

**Introduction:** Provides necessary background information and pathophysiology of the case. Does not discuss the final diagnosis, rather supports the intended diagnosis via arguments.

**Materials and Methods:** Briefly describes all the methods used to aid in diagnosis. While you have not performed these tests yourselves, this is where you outline which pathology tests can be performed and you can demonstrate your understanding. Discusses further tests to be employed to confirm the diagnosis.

**Results:** All data presented clearly with reference ranges (if applicable). Layout is clear with further tests and expected results discussed.

**Discussion:** Clear discussion of the results with supporting arguments and reasoning for arriving at the final diagnosis.

**References:** Harvard or APA referencing system used with appropriate in-text references

### Referencing Style

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

### Submission

Online

### Learning Outcomes Assessed

- Analyse the features of inflammatory disease processes and the range of tissue responses
- Describe the neoplastic process, grading systems for staging malignant neoplasms and correlation with gene expression

- Discuss the principles, mechanisms, requirements and the application of use for special stain procedures and specialised fixation techniques of new molecular and hybridisation techniques in histology and cytology.

## Examination

### **Outline**

Complete an invigilated examination.

### **Date**

During the examination period at a CQUniversity examination centre.

### **Weighting**

40%

### **Length**

180 minutes

### **Minimum mark or grade**

50%

### **Exam Conditions**

Closed Book.

### **Materials**

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

## 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