



# BMSC13016 Advanced Histopathology and Cytopathology

## Term 1 - 2021

Profile information current as at 18/08/2022 03:13 am

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 - 2021

- 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. **Case Study**

Weighting: 20%

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

Weighting: 40%

#### 3. **Oral 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 Student feedback

**Feedback**

Comprehensive detail to lectures, with approachable and well organised lecturer.

**Recommendation**

Maintain similar content to lectures and revision material. Ensure students are contacted weekly via forums and ensure all material is marked promptly.

#### Feedback from Broader (industry) feedback

**Feedback**

Implementation of a 'microbiological' stain within a residential school for one of the histology units

**Recommendation**

After discussion with technical and academic staff, the plan is to implement a Gram's stain and a Wade Fite stain to the second year unit.

#### Feedback from Self-reflection

**Feedback**

Not enough time spent on detailing images, or summarising each lecture.

**Recommendation**

Implement dot-points to summarise each lecture, and include image recognition (formative) quizzes each week.

#### Feedback from Self-reflection and student feedback

**Feedback**

Allow for a choice of questions to answer in the final assessment

**Recommendation**

Implement a choice of e.g. five out of six long answer questions in the final assessment.

## 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. Discuss 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 Scientists (AIMS).

## 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 - Practical Assessment - 40%	•		•		
2 - Case Study - 20%	•	•		•	•
3 - Oral 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					

## Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Practical Assessment - 40%	•	•	•	•				•		
2 - Case Study - 20%	•	•	•	•		•				
3 - Oral Examination - 40%	•	•	•	•				•		

## Textbooks and Resources

### Textbooks

BMSC13016

#### Prescribed

##### Functional Histology

Second Edition (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: 6th (2014)

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

Elsevier

Philadelphia , PA , USA

ISBN: 978-0-7020-4747-3

Binding: Paperback

#### Additional Textbook Information

Copies can be purchased 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)
- 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

### Week 1 - 08 Mar 2021

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

<b>Week 2 - 15 Mar 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Injury, Inflammation, Repair, and the - plasias		
<b>Week 3 - 22 Mar 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
The Integumentary and Respiratory Systems	Kerr: 9, 12 and Young et. al., 9, 12	
<b>Week 4 - 29 Mar 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
The Digestive System and the Liver	Kerr: 14, 15 and Young et. al., 14, 15	
<b>Week 5 - 05 Apr 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
The Reproductive Systems	Kerr: 18, 19 and Young et. al., 18, 19	
<b>Vacation Week - 12 Apr 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Break Week		
<b>Week 6 - 19 Apr 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
The Cardiovascular System and Blood, Endocrine and Lymphatics.	Kerr: 3, 8, 11, 17 and Young et. al., 3, 8, 11, 17	<b>Case Study Report</b> Due: Week 6 Friday (23 Apr 2021) 11:45 pm AEST
<b>Week 7 - 26 Apr 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Muscles, Bones and Skeletal Tissue	Kerr: 6, 10 and Young et. al., 6, 10	
<b>Week 8 - 03 May 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
The Renal and Nervous Systems	Kerr: 16, 7 and Young et. al., 16, 7, 20	
<b>Week 9 - 10 May 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Diagnostic Cytopathology	Kerr: 1, 2, 18 and Young et. al., 1, 19	
<b>Week 10 - 17 May 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Residential School		<b>Practical Portfolio and Workbook</b> Due: Week 10 Wednesday (19 May 2021) 3:00 pm AEST
<b>Week 11 - 24 May 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Autopsies, Post Mortems and Quality Assurance.		
<b>Week 12 - 31 May 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Revision		
<b>Review/Exam Week - 07 Jun 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
<b>Exam Week - 14 Jun 2021</b>		

## Term Specific Information

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

1. 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
2. Through email ([i.christiansen@cqu.edu.au](mailto:i.christiansen@cqu.edu.au)); or
3. Via telephone on 07 4930 6518.

As the name suggests, this unit will provide you with an extension of your knowledge of histology and cytology, along with some of the pathologies identified in these laboratory spaces. BMSC13016 Histopathology and Cytopathology is a core unit in two courses,:

- CG93 - Bachelor of Medical Sciences (Pathology)
- CL10 - Bachelor of Medical Laboratory Science (Honours)

You will be provided an opportunity to explore how to apply the knowledge learnt 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, we will work through the weekly study questions that are provided to you on the Moodle site. These weekly study questions will help you 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 Case Study Report

#### Assessment Type

Case Study

## Task Description

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.

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.

Guidelines to complete the report, marking rubric and a template will be available on the Moodle site.

## Assessment Due Date

Week 6 Friday (23 Apr 2021) 11:45 pm AEST

Quiz answers automatically save in Moodle, case report to be submitted online.

## Return Date to Students

Week 8 Friday (7 May 2021)

## 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:** The report is presented in the required template. Clarity of purpose and coherence of expression (spelling, grammar, syntax); Clear and organised flow of information.

**Abstract and Introduction:** Provides a clear overview and overall summary of the case study. 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 haven't performed these tests yourselves, this is where you can outline which pathology tests can be performed and you can show 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

- Distinguish histopathological and cytopathological specimens according to body system, pathology and artefactual morphology
- Discuss 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.

## Graduate Attributes

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



## 2 Practical Portfolio and Workbook

### Assessment Type

Practical Assessment

### Task Description

Over the three days of the residential school / block practical you will perform microtomy, simulate an 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:

Skills component (32%):

This assessment must be handed to the assessor for marking on completion by midday on day 3. This assessment is worth 80% of your practical assessment (or 32% of your overall grade). You must achieve a minimum of 50% of 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. Which stains 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 or 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 3, prior to the completion of the residential school.

Theory component (8%):

This assessment must be handed to the assessor for marking on completion by the end of day 2. This assessment is worth 20% of your practical assessment (or 8% of your overall grade). Items assessed include:

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

### Assessment Due Date

Week 10 Wednesday (19 May 2021) 3:00 pm AEST

### Return Date to Students

Week 11 Friday (28 May 2021)

### 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 sixteen (16) 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 2 for assessment.
- Special stains. The quality of four stains will be marked out of 24 marks (6 marks per stain) - 4 slides. These will be handed in by 12:00 midday on day 3 for assessment
- Fine needle aspirate collection, preparation of slides and staining will be assessed in this FNA simulation and marked out of 6 marks - 2 slides. These will be handed in at the end of day 2 for assessment

Theory

- Identification of 10 tissue blocks (10 marks available)
- The workbook will be marked against a set of correct answers (10 marks available)

### Referencing Style

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

## Submission

Offline

## Submission Instructions

The stained and labelled slides will be submitted on a slide tray provided along with the completed workbook.

## 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

## Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Ethical practice

## 3 Viva voce

### Assessment Type

Oral Examination

### Task Description

This assessment item is an oral examination which comprised of two parts. You have the option to complete this face to face or via Zoom conferencing software. If you choose for the latter, it is a requirement that you have access to Zoom, a webcam and a microphone.

You will be required to answer:

**Part A:** 5 x short answer questions (to demonstrate memory recall). Two of which will be image questions. These questions will be worth 2 marks each = 10 marks **AND**

**Part B:** 5 x longer answer questions (to demonstration interpretation of data/application). You will be presented with seven (7) questions and only need to choose only five (5). These questions will be worth 10 marks each = 50 marks. Total Viva Voce is worth 60 marks.

### Assessment Due Date

This will be held during the exam period; specific viva voce times to be negotiated with the unit coordinator during term.

### Return Date to Students

Assessment return will be following the completion of the final scheduled viva Voce.

### Weighting

40%

### Minimum mark or grade

50%

### Assessment Criteria

**Part A.** This section relies on memory which is designed to contain short answer questions. Each of these questions will be worth two marks (5 questions x 2 marks = maximum of 10 marks)

**Part B.** This section relies on an interpretation and application of knowledge and contains longer questions. Each of these questions are worth 10 marks each with the breakdown of marks as follows.

Three key criteria will be marked in this assessment.

**1. Relevance** - The ability to deliver the correct answer(s) to the question in a comprehensive and succinct manner (worth 6/10 marks)

**2. Coherence** - The ability to logically sequence the response (worth 2/10 marks)

**3. Overall organisation, expression and flow** - Responses are well crafted and include a scientific/medical vocabulary. Responses are delivered in a confident manner using language targetted to a general audience. Responses are delivered with clear diction, appropriate volume and pace. (worth 2/10 marks)

### Referencing Style

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

**Submission**

No submission method provided.

**Learning Outcomes Assessed**

- Discuss the features of inflammatory disease processes and the range of tissue responses
- Perform techniques and explain the principles, mechanisms and requirements of use for special stain procedures and specialised fixation techniques
- 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.

**Graduate Attributes**

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