



# BMSC12001 *Histological and Cytological Techniques*

## Term 2 - 2023

Profile information current as at 03/05/2024 05:05 am

All details in this unit profile for BMSC12001 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

This unit will provide you with foundation skills for work in histological and cytological (anatomical pathology) pathology departments. You will discuss and perform diagnostic histological techniques including tissue preparation, fixation, routine and special staining, sectioning and mounting. You will also prepare cytological specimens. Through your participation in practical sessions, you will develop a high level of skill in efficient use of microscope optics for examination of prepared slides. You will be able to apply quality assurance processes and quality improvement measures.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Pre-requisites: BMSC11001 Human Body Systems 1 AND BMSC11002 Human Body Systems 2 OR BMSC11010 Human Anatomy and Physiology 1 AND BMSC11011 Human Anatomy and Physiology 2 OR BMSC11007 Medical Anatomy and Physiology 1 AND BMSC11008 Medical 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
- 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. **Online Quiz(zes)**

Weighting: 20%

#### 2. **Portfolio**

Weighting: 40%

#### 3. **Presentation**

Weighting: 10%

#### 4. **Examination**

Weighting: 30%

### 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**

The unit, assessments and teaching style were very engaging and helpful to student learning.

**Recommendation**

Maintain the new Moodle Lessons format

#### Feedback from SUTE and self reflection

**Feedback**

The oral presentation was a good mode for assessments but 30% weighting was too high.

**Recommendation**

Review of weighting of assessments has been undertaken in consultation with Head of Course and Deputy Dean of Learning and Teaching. Adjustments shall be implemented via a Unit Update Proposal.

#### Feedback from SUTE and self reflection

**Feedback**

The addition of demonstration videos on different equipment prior to the residential school will help prepare students.

**Recommendation**

Consider the possibility to record some videos in the laboratory to prepare students prior to the residential school.

## Unit Learning Outcomes

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

1. Apply routine procedures and techniques relevant to histology and cytology specimen receipt, fixation, processing and staining used in pathology laboratories
2. Discuss and apply the safe handling and quality control procedures of all equipment, reagents and samples in a histology laboratory
3. Assess staining errors and outline remedial actions
4. Outline the steps in tissue processing from specimen receipt to reporting.

## 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 |
| 1 - Online Quiz(zes) - 20% |                   | • |   | • |
| 2 - Portfolio - 40%        | •                 | • | • |   |
| 3 - Presentation - 10%     | •                 |   |   |   |
| 4 - Examination - 30%      |                   |   | • | • |

### Alignment of Graduate Attributes to Learning Outcomes

| Graduate Attributes                                 | Learning Outcomes |   |   |   |
|---|-------------------|---|---|---|
|   | 1                 | 2 | 3 | 4 |
| 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

BMSC12001

#### Prescribed

#### **Cellular Pathology: An Introduction to Techniques and Applications**

Edition: 3rd (2015)

Authors: D. J. Cook

Woodslane

ISBN: 9781907904356

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)
- Presentation software such as MS Powerpoint
- ZOOM

## Referencing Style

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

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)
- [Vancouver](#)

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 - 10 Jul 2023

| Module/Topic                      | Chapter   | Events and Submissions/Topic |
|-----------------------------------|-----------|------------------------------|
| Introduction, fixation and cut-up | 1, 3, 4.1 | Tutorial                     |

### Week 2 - 17 Jul 2023

| Module/Topic                    | Chapter | Events and Submissions/Topic |
|---------------------------------|---------|------------------------------|
| Tissue processing and embedding | 4, 5    | Tutorial                     |

### Week 3 - 24 Jul 2023

| Module/Topic                            | Chapter | Events and Submissions/Topic |
|---|---------|------------------------------|
| Sectioning, coverslipping and artefacts | 4, 6    | Tutorial                     |

### Week 4 - 31 Jul 2023

| Module/Topic                     | Chapter | Events and Submissions/Topic |
|----------------------------------|---------|------------------------------|
| Staining: Haematoxylin and Eosin | 7       | Tutorial                     |

**Week 5 - 07 Aug 2023**

| Module/Topic  | Chapter | Events and Submissions/Topic    |
|---|---------|---------------------------------|
| Staining: Carbohydrates, connective tissue, muscle and immunohistochemistry | 8, 12   | Tutorial<br><b>Quiz 1 opens</b> |

**Vacation Week - 14 Aug 2023**

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

**Week 6 - 21 Aug 2023**

| Module/Topic  | Chapter   | Events and Submissions/Topic     |
|---|-----------|----------------------------------|
| Staining: Pigments, microbiology, amyloid and silver stains | 7, 10, 11 | Tutorial<br><b>Quiz 1 closes</b> |

**Week 7 - 28 Aug 2023**

| Module/Topic            | Chapter | Events and Submissions/Topic |
|-------------------------|---------|------------------------------|
| Gynaecological cytology | 13      | Tutorial                     |

**Week 8 - 04 Sep 2023**

| Module/Topic       | Chapter | Events and Submissions/Topic  |
|--------------------|---------|---|
| Residential School |         | <b>Practical Portfolio</b> Due: Week 8 Thursday (7 Sept 2023) 12:00 pm AEST<br><b>Anatomical Pathology Stain Presentation</b> Due: Week 8 Wednesday (6 Sept 2023) 11:45 pm AEST |

**Week 9 - 11 Sep 2023**

| Module/Topic                | Chapter | Events and Submissions/Topic |
|-----------------------------|---------|------------------------------|
| Non-gynaecological cytology | 14      | Tutorial                     |

**Week 10 - 18 Sep 2023**

| Module/Topic                              | Chapter | Events and Submissions/Topic    |
|---|---------|---------------------------------|
| Staining: Lipids and enzymes<br>Andrology | 9, 8.6  | Tutorial<br><b>Quiz 2 opens</b> |

**Week 11 - 25 Sep 2023**

| Module/Topic         | Chapter | Events and Submissions/Topic |
|----------------------|---------|------------------------------|
| Molecular techniques | 15      | Tutorial                     |

**Week 12 - 02 Oct 2023**

| Module/Topic                              | Chapter | Events and Submissions/Topic  |
|---|---------|---|
| Immunofluorescence<br>Electron microscopy | 19, 12  | Tutorial<br><b>Summative Quizzes</b> Due: Week 12 Friday (6 Oct 2023) 11:45 pm AEST |

**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  |
|--------------|---------|---|
|              |         | Exam to be held during the examination period. Dates and times to be confirmed during term. |

## Term Specific Information

Your unit coordinator for BMSC12001 Histology and Cytology Techniques is Ingrid Christiansen. You can contact me using the forum on the unit's Moodle site or alternatively through email (i.christiansen@cqu.edu.au) or on 07 4930 6518. The forum for this unit is continuously monitored and you can typically expect a response within 24 hours of posting your question (on work days).

As the name suggests, this unit will provide you with foundation knowledge of histological and cytological techniques. BMSC12001 Histology and Cytology Techniques is a core unit in CL10 - Bachelor of Medical Laboratory Science; and an elective unit in CG93 - Bachelor of Medical Science (Specialisation).

You will be provided an opportunity to explore how to apply the knowledge learnt in lecture material in a compulsory residential school (exact dates to be advised). Here you will be mirroring anatomical pathology laboratory techniques with guidance from an industry professional.

A second residential school will be made available if the total cohort exceeds 24 students, as this will exceed the capacity of the histology laboratory.

Tutorials are delivered each week on Rockhampton campus synchronously with ZOOM. Students enrolled in mixed 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 Summative Quizzes

#### Assessment Type

Online Quiz(zes)

#### Task Description

This assessment task requires you to demonstrate your knowledge and understanding of histological and cytological techniques that you learn in this unit. You are required to complete two (2) online quizzes.

- Each quiz will be comprised of multiple choice/true-false and short answer questions.
- Your time limit for each quiz is 30 minutes.
- The quiz will automatically submit at the completion of the 30 minute duration.
- You will be allowed one attempt at each quiz.

Each quiz is worth 10%, and overall will contribute 20% to your final grade. You will only be able to access and complete Quiz 2 after you have attempted Quiz 1.

| Quiz | Opens                       | Closes                   | Covers     |
|------|-----------------------------|--------------------------|------------|
| 1    | 11 August 2023 (Week 5)     | 25 August 2023 (Week 6)  | Weeks 1-5  |
| 2    | 29 September 2023 (Week 11) | 6 October 2023 (Week 12) | Weeks 6-12 |

#### Number of Quizzes

2

#### Frequency of Quizzes

Other

**Assessment Due Date**

Week 12 Friday (6 Oct 2023) 11:45 pm AEST

Please see the timeline outlined above for specific information about quiz opening times and due dates

**Return Date to Students**

Review/Exam Week Monday (9 Oct 2023)

**Weighting**

20%

**Minimum mark or grade**

50% collectively

**Assessment Criteria**

The questions will be marked upon submission of your quiz. You will receive your grade following the completion of your quiz, and correct answers to each individual quiz questions will be available after the due date of the quiz. The unit coordinator will check that all questions have been marked correctly.

**Referencing Style**

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)
- [Vancouver](#)

**Submission**

Online

**Learning Outcomes Assessed**

- Discuss and apply the safe handling and quality control procedures of all equipment, reagents and samples in a histology laboratory
- Outline the steps in tissue processing from specimen receipt to reporting.

## 2 Practical Portfolio

**Assessment Type**

Portfolio

**Task Description**

Over the duration of the residential school, you will be able to apply some of your theoretical knowledge and begin to develop your technical and scientific skills in processing and staining tissues. You will learn to macrodissect, embed and process tissues, then cut and stain sections. You will also be required to complete a workbook to hand in with your slide portfolio. The quality of the finished slides will determine if a medically qualified pathologist can use your slides to interpret what he/she sees and make the final diagnosis. For this reason, the final practical session of the residential school will be a practical assessment for all students. You will be required to embed, section and stain tissues that will be assessed for quality. The practical assessment consists of two parts.

1. Workbook. This is to be completed during the residential school and will be graded as pass/fail
2. Embedded tissue and stained slides.

These will be completed during the residential school and assessed with a grade worth 40% of the overall unit. A minimum grade of 50% is required to pass this assessment. Both items are to be submitted at the end of the residential school for grading.

**Assessment Due Date**

Week 8 Thursday (7 Sept 2023) 12:00 pm AEST

Practical portfolio to be handed in on completion of the residential school

**Return Date to Students**

Week 10 Friday (22 Sept 2023)

**Weighting**

40%

**Minimum mark or grade**

50%

**Assessment Criteria**

The portfolio of slides and blocks will be assessed on the following:

Embedding quality, position of tissue, section quality, staining quality, coverslipping and labelling.

The finished slides must not show artefacts such as tears, folds, wrinkles, chatter or bubbles which obscure part(s) of the section, and the final section is not to be over-stained or under-stained. The stain must have an even balance showing the expected histological structures. A detailed marking rubric of how the portfolio is marked will be provided on the Moodle site, and the terms and features above will become familiar during the early lectures and laboratory sessions.



## Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)
- [Vancouver](#)

## Submission

Offline

## Learning Outcomes Assessed

- Apply routine procedures and techniques relevant to histology and cytology specimen receipt, fixation, processing and staining used in pathology laboratories
- Discuss and apply the safe handling and quality control procedures of all equipment, reagents and samples in a histology laboratory
- Assess staining errors and outline remedial actions

## 3 Anatomical Pathology Stain Presentation

### Assessment Type

Presentation

### Task Description

Several different staining procedures are utilised in anatomical pathology to aid the pathologist in the diagnosis of specific conditions as well as the gradings of different malignancies.

You will be required to prepare a presentation (e.g. MS Powerpoint) on a specific histological or cytological staining technique (chosen from a list of different stains provided on the BMSC12001 Moodle site).

You will be required to prepare a maximum of five (5) slides and talk for approximately four (4) minutes with one (1) minute of questions (5 minutes per student).

What you need to cover:

- A brief history of the stain
- Why it is used
- How it is done
- What type of tissue it is used on
- What are the results of the stain?

Please note - this task is for you to deliver information in an engaging yet informative manner, so please do not fill your slides with an abundance of text.

This presentation is to be delivered at the end of the residential school, and the presentation is to be uploaded to Moodle prior to your presentation.

### Assessment Due Date

Week 8 Wednesday (6 Sept 2023) 11:45 pm AEST

To be uploaded to Moodle by 6/9/2023, and presented to the class on 7/9/2023

### Return Date to Students

Week 10 Friday (22 Sept 2023)

### Weighting

10%

### Assessment Criteria

The following criteria will be assessed:

1. Validity/relevance of content (is the content in fact correct?)
2. Slide aesthetics (how busy are your slides?)
3. Oral presentation ability (is your audience engaged? Are you able to communicate the information with eye contact and minimal hesitation or indecisiveness of speech?)
4. Ability to answer questions (do you understand your material?)

A more comprehensive rubric will be available on Moodle.

## Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)
- [Vancouver](#)

## Submission

Offline Online

## Submission Instructions

Presentation is to be uploaded to Moodle, while presentation is to be completed live in class.

**Learning Outcomes Assessed**

- Apply routine procedures and techniques relevant to histology and cytology specimen receipt, fixation, processing and staining used in pathology laboratories

**Examination****Outline**

Complete an invigilated examination.

**Date**

During the examination period at a CQUniversity examination centre.

**Weighting**

30%

**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