# BMSC13001 *Advanced Haematology*
## Term 2 - 2020

Profile information current as at 06/05/2024 08:03 am



## General Information

### Overview
In this unit you will apply your foundation knowledge of haematology to the study of how haematological disorders manifest and are diagnosed through changes in number, cytogenetics and morphology of cells. Diseases of haemostasis including therapeutic management with anticoagulants will also be discussed. This advanced unit builds on the knowledge and skills taught in previous units and will prepare you for work as a Medical Laboratory Scientist in Haematology. You will be required to attend a compulsory residential school in Rockhampton and an assessment task will be completed on campus during this residential school.

### 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: BMSC12003 Haematology and Transfusion Science
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 - 2020

- 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. **Written Assessment**
Weighting: 20%
2. **Practical Assessment**
Weighting: 30%
3. **Laboratory/Practical**
Weighting: Pass/Fail
4. **Online Test**
Weighting: 50%

### 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 Moodle 'Have Your Say'

**Feedback**
There was strong support for the format of the Residential School.

**Recommendation**
Continue with the format of case-based teaching of Haematological morphology.

#### Feedback from Moodle 'Have Your Say'

**Feedback**
There was continued recognition of the value of having an expert Haematology Scientist teach the unit.

**Recommendation**
Attempt to engage an industry expert to deliver the unit, particularly the morphology component and the Residential School in the future.

#### Feedback from Unit Coordinator and Academic reflection

**Feedback**
Additional resources could be made available to allow students to become more familiar with the morphology of blood smears

**Recommendation**
Consideration to be given to the introduction of virtual microscopy to allow students to practice the examination of blood smears via distance education.

#### Feedback from Unit Coordinator and Academic reflection

**Feedback**
More time could be dedicated to the morphology component of the Residential School to further enhance the student's understanding of this subject

**Recommendation**
Consideration will be given to restructuring the Residential School to enable additional time for examination of blood smears.

## Unit Learning Outcomes

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

1. Distinguish benign from malignant haematological disorders based on numerical, cytogenetic and morphological changes in the cells
2. Discuss the detection and monitoring of blood diseases using laboratory tests appropriate to the patient's clinical condition
3. Discuss disorders of haemostasis and the use of anticoagulant therapies
4. Analyse results of hematological tests and provide provisional and differential diagnoses with suggested further testing to support and confirm the diagnosis
5. Perform core haematology and haemostasis tests including quality control procedures.

**Competency Based Standards for Medical Scientists, December 2009.**
**Unit 1**: Collection, preparation and analysis of clinical material - **Elements** 1.1.1 - 1.1.3; 1.1.6 - 1.1.8; 1.2.4; 1.3.1 - 1.3.5; 1.5.1 - 1.5.5 & 1.6.1 - 1.6.8;
**Unit 2**: Correlation and validation of results of investigations using knowledge of method(s) including analytical principles and clinical information - **Elements** 2.1.1 - 2.1.2; 2.2.1; 2.3.1 & 2.3.2
**Unit 3**: Interpretation, reporting and issuing of laboratory results - **Elements** 3.1.1; 3.2.1 - 3.2.3; 3.2.6 - 3.2.7 & 3.3.1 - 3.3.2
**Unit 4**: Maintenance of documentation, equipment, resources and stock - **Elements** 4.2.1 - 4.2.6
**Unit 5**: Maintenance and promotion of safe working practices - **Elements** 5.1.3; 5.2.1; 5.3.4; 5.3.9; 5.4.1 - 5.4.5
**Unit 6**: Professional accountability and participation in continuing professional development - **Elements** 6.5.6 & 6.5.7

## 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 |
| 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 - 20% | • | • | • | | | | | | | |
| 2 - Practical Assessment - 30% | • | • | • | • | • | • | | | | |
| 3 - Online Test - 50% | • | • | • | • | | | | | | |

## Textbooks and Resources

### Textbooks

BMSC13001

**Prescribed**

**Clinical Haematology Atlas**
Edition: 5th (2016)
Authors: Bernadette F. Rodak, Jacqueline H. Carr
Elsevier
St Louis , Missouri , United States of America
ISBN: 9780323322492
Binding: Spiral
BMSC13001

**Prescribed**

**Rodak's Haematology, Clinical Principles and Applications**
Edition: 6th (2019)
Authors: Elaine Keohane, Catherine Otto, Jeanine Walenga
Elsevier
St Louis , Missouri , United States of America
ISBN: 9780323530453
Binding: Hardcover

**Additional Textbook Information**
If you prefer to study with a paper copy, they can be purchased at the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code). eBook version is also available for Rodak's Haematology, Clinical Principles and Applications at: https://www.elsevier.com/books/rodaks-hematology/keohane/978-0-323-53045-3

**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 styles below:**

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Wayne Pederick** Unit Coordinator
w.pederick@cqu.edu.au
**Roxina Sharma** Unit Coordinator
r.r.sharma@cqu.edu.au

## Schedule

**Week 1 - 13 Jul 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| 1. Introduction to Advanced Haematology<br>2. Bone Marrow Examination | Chapters 1 & 14 | |

**Week 2 - 20 Jul 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| 1. Increased RBC Destruction<br>2. Intrinsic Defects<br>3. Extrinsic Defects - Immune and Non-Immune Causes | Chapters 20-25 | Tutorial 1 - An approach to blood film review |

**Week 3 - 27 Jul 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| 1. Non-Malignant Leucocyte Disorders<br>2. Paediatric and Geriatric Haematology<br>3. Platelet morphology | Chapters 26, 43, 10 | Tutorial 2 - Haemolytic Anaemia - Case study 1<br>Tutorial 3 - Haemolytic Anaemia - Case study 2 |

**Week 4 - 03 Aug 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Haematological malignancy development, genetics and nomenclature | Chapters 28-30 | Tutorial 4 - Non - malignant leukocyte disorders - A case study |

**Week 5 - 10 Aug 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| 1. Myelodysplastic Syndromes<br>2. Myeloproliferative Neoplasms | Chapters 32-33 | |

**Vacation Week - 17 Aug 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Independent study week - an opportunity for self-directed learning and mid-unit revision. | | No lectures. |

**Week 6 - 24 Aug 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Myeloid Leukaemia | Chapters 31, 28-30 | **Case Study** Due: Week 6 Monday (24 Aug 2020) 11:59 pm AEST |

**Week 7 - 31 Aug 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Lymphoid Leukaemia | Chapters 31, 28-30 | |

**Week 8 - 07 Sep 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| 1. Lymphomas<br>2. Myelomas<br>3. Other Haematological Malignancies | Chapter 34 | |

**Week 9 - 14 Sep 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| 1. Anticoagulants and Coagulopathies<br>2. Platelet Disorders | Chapters 37-42, 10 | |

**Week 10 - 21 Sep 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Malaria and other Blood Parasites | Chapter 22 | |

**Week 11 - 28 Sep 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Revision Lecture | On-line Q&A session | |

**Week 12 - 05 Oct 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Compulsory Residential School - TBA | Practical Manual<br>laboratory Workbook<br>Practical Assessment | During the Residential School,you will be assessed on your ability to perform a number of morphological analysis as presented in your practical manual.<br>**Practical Manual:** Pass/Fail<br>**laboratory Workbook:** Pass/Fail<br>**Practical Assessment**: 30% |

**Review/Exam Week - 12 Oct 2020**

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---|---|
| Revision / Online Test | | The end-of-unit online test will be scheduled in the CQUniversity examination period between 15.10. 2020 - 23.10.2020. The exact date will be advised on the unit Moodle page. The Online Test comprises 50% of the overall unit mark. |

**Exam Week - 19 Oct 2020**

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

## Term Specific Information

**Unit Contacts for 2020**
**Unit Coordinators:**
Wayne Pederick: w.pederick@cqu.edu.au
Roxzina Sharma: r.r.sharma@cqu.edu.au
**Lecturer / Tutor:**
Roxzina Sharma: r.r.sharma@cqu.edu.au
Caroline Zollinger: c.zollinger@cqu.edu.au
Pre-recorded lectures will be used throughout the term and will be available to students at the start of each lecture week. Live tutorials will be held via Zoom - please see the Moodle site for further details. Students are expected to review the weekly lectures before each tutorial session.
This year students have e-access to the prescribed textbook, additional reading resources and some of the supplementary textbooks via the eReading Lists on the Moodle page.
Attendance to the Residential School is compulsory for all students. Due to COVID-19 further details will be provided as soon as available during the term.
Students are encouraged to use the Moodle Q&A and Forum for all communication purposes. This will be monitored by all of us.

## Assessment Tasks

### 1 Case Study

**Assessment Type**
Written Assessment

**Task Description**
You will be provided with a clinical case study on the unit Moodle site. The following information regarding the case will be available to you: clinical presentation, patient history, blood smear morphology, haematological parameters (provided by an automated analyser) and biochemical changes (if any). You are required to write a report (up to 1,500 words) using a case study approach describing the pathology observed, aetiology, specific morphological or haematological characteristics observed that led to the diagnosis, differential diagnosis, treatment options and any

recommended further tests. Guidelines to complete the report, marking rubric and a template will be made available.

**Assessment Due Date**
Week 6 Monday (24 Aug 2020) 11:59 pm AEST

**Return Date to Students**
Week 9 Monday (14 Sept 2020)
Online

**Weighting**
20%

**Minimum mark or grade**
50%

**Assessment Criteria**
The 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:** 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; discusses further tests to be employed in order to confirm the diagnosis.
**Results:** all data presented clearly with reference ranges; 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 referencing system used with appropriate in-text references The written assessment is worth 20% of your final grade.

**Referencing Style**

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

**Submission**
Online

**Learning Outcomes Assessed**

- Discuss the detection and monitoring of blood diseases using laboratory tests appropriate to the patient's clinical condition
- Analyse results of hematological tests and provide provisional and differential diagnoses with suggested further testing to support and confirm the diagnosis

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking

## 2 Practical Assessment

**Assessment Type**
Practical Assessment

**Task Description**
**Practical Assessment(30% of the final grade):** This will be conducted on the final day of the residential school. It will encompass skills practiced on the days leading up to this assessment. This assessment must be handed to the assessor for marking on completion by end of the final day. Students who fail the 1st attempt of this exam 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 second half of the final day, prior to completion of the residential school session.

**Assessment Due Date**

At the end of the residential school.

**Return Date to Students**

Within a week of end of residential school.

**Weighting**
30%

**Minimum mark or grade**
50%

**Assessment Criteria**
You will be provided with patient history, haematology and cytogenetic test results on a number of patients. You are required to review the data, comment on morphology and suggest a diagnosis distinguishing benign from malignant haematological disorders.

**Referencing Style**

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

**Submission**
Offline

**Learning Outcomes Assessed**

- Distinguish benign from malignant haematological disorders based on numerical, cytogenetic and morphological changes in the cells

**Graduate Attributes**

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

## 3 Laboratory / Practical Manual

**Assessment Type**
Laboratory/Practical

**Task Description**
**Laboratory / Practical Manual:** Individual activities during the residential school will provide hands-on experience of Haematology techniques used in pathology laboratories. You will be expected to perform a number of morphological analyses as outlined in the practical manual. The practical manual will be uploaded to the Moodle site during the week prior to residential school. All tasks need to be completed during the residential school block. Completion of the tasks assigned in the practical manual will provide evidence for student engagement and understanding of the principles behind morphological assessments of laboratory tests. Laboratory staff will assess your individual experimental capability to ensure your understanding of the learning outcomes. You will be required to submit the completed version of the practical manual to the residential school supervisor at the end of each task. This assessment is pass/fail. A pass is required in order to successfully complete the unit.
**Laboratory Workbook (Pass / Fail):** You will be provided on the Moodle site with a laboratory workbook. This will contain all the tasks that need to be completed during the residential school. It will also contain a series of short questions and patient reports to be completed in relation to the cases provided. Group experimental activities during the residential school will foster team work and provide hands-on experience of the haematological techniques used in pathology laboratories. Completion of this workbook will evidence student engagement and understanding of the principles behind the haematological tests. Laboratory staff or demonstrators will assess your individual experimental capability during residential school to ensure your understanding of the learning outcomes. You will be required to submit the completed version of the laboratory workbook on the Moodle site by the due date.

**Assessment Due Date**

Within a week of completion of residential school.

**Return Date to Students**

Within two weeks of completion of residential school.

**Weighting**
Pass/Fail

**Minimum mark or grade**
50%

**Assessment Criteria**
The laboratory staff will provide immediate verbal feedback to you on the practical hands-on aspect of this assessment item. The laboratory workbook template will contain a detailed assessment scheme associated with the tasks and questions/reports to be completed.

**Referencing Style**

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

**Submission**
Online

**Submission Instructions**
You will be required to upload the completed workbook online via the Moodle page.

**Learning Outcomes Assessed**

- Perform core haematology and haemostasis tests including quality control procedures.

## 4 Online Test

**Assessment Type**
Online Test

**Task Description**
Complete an online test.
The online test will consist of two sections;
Section A: Short answer questions
Section B: Case studies

**Assessment Due Date**

During the University examination period.

**Return Date to Students**

After certification of grades.

**Weighting**
50%

**Minimum mark or grade**
50%

**Assessment Criteria**
Provide answers to a series of short answer and case study questions.

**Referencing Style**

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

**Submission**
Online

**Learning Outcomes Assessed**

- Distinguish benign from malignant haematological disorders based on numerical, cytogenetic and morphological changes in the cells
- Discuss the detection and monitoring of blood diseases using laboratory tests appropriate to the patient's clinical condition
- Discuss disorders of haemostasis and the use of anticoagulant therapies
- Analyse results of hematological tests and provide provisional and differential diagnoses with suggested further testing to support and confirm the diagnosis

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

## 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