



# BMSC12003 Haematology and Transfusion Science

## Term 1 - 2018

Profile information current as at 02/05/2024 01:03 am

All details in this unit profile for BMSC12003 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## General Information

### Overview

On successful completion of this unit, you will be able to discuss fundamental haematology and transfusion science, including erythrocyte, leukocyte, reticulocyte and platelet morphology, enumeration and function. Skills in enumeration of blood cells and tests of haematological function will be developed during practical exercises. Students should be able to contrast normal blood cell function with disorders of haemostasis affecting blood clotting and iron metabolism affecting blood cell numbers. Distance education students will be required to have access to a computer to make frequent use of internet resources and to attend a residential school on the Rockhampton campus to promote the development of unit learning outcomes.

### 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-requisite: BMSC11002 Human Body Systems 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 1 - 2018

- 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: 40%

#### 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 Student Feedback

##### Feedback

Exam Review Tutorials

##### Recommendation

Recorded tutorials focusing on case study assignment and examination assessment items will be provided.

#### Feedback from Student feedback

##### Feedback

Scheduling of assessment and residential school

##### Recommendation

Scheduling of the relevant assessment item and residential school will be requested such that the assessment return date will be prior to the residential school.

## Unit Learning Outcomes

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

1. Describe the physiological process of haematopoiesis
2. Distinguish between normal and abnormal erythrocyte, leukocyte, reticulocyte and platelet morphology
3. Describe the causes and diagnosis of selected haematologic and haemostatic disorders
4. Interpret a full blood count and related basic haematological tests
5. Discuss the principle of operation for selected automated and non automated haematological laboratory test procedures
6. Test and conduct quality control of basic haematological, immunohaematological and coagulation procedures in the laboratory.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Written Assessment - 20%	•	•	•	•		
2 - Practical Assessment - 40%		•		•		•
3 - Examination - 40%	•	•	•	•	•	

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
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 - 40%	•	•	•		•	•				
3 - Examination - 40%	•	•								

## Textbooks and Resources

### Textbooks

BMSC12003

#### Prescribed

##### **Clinical Haematology Atlas**

Edition: 5th (2016)

Authors: Bernadette F. Rodak and Jacqueline H. Carr

Elsevier

St Louis , Missouri , United States of America

ISBN: 9780323322492

Binding: Hardcover

BMSC12003

#### Prescribed

##### **Rodak's Haematology, Clinical Principles and Applications**

Edition: 5th (2015)

Authors: Elaine Keohane, Larry Smith and Jeanine Walenga

Elsevier Saunders

St Louis , Missouri , United States of America

ISBN: 9780323239066

Binding: Hardcover

[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:**

- [American Psychological Association 6th Edition \(APA 6th edition\)](#)
- [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Wayne Pederick** Unit Coordinator

[w.pederick@cqu.edu.au](mailto:w.pederick@cqu.edu.au)

## Schedule

### Week 1 - 05 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
1. Introduction to unit, Learning Outcomes, Assessments etc.		
2. Haematopoiesis	6, 7	
3. Cells of the blood, structure, morphology and function		

**Week 2 - 12 Mar 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. RBC nomenclature & classification 2. RBC production, metabolism and destruction 3. Automation and POC Testing 4. Haemoglobin structure and function	6, 7, 8, 9, 10, 11, 14, 15, 22, 31, 32, 44	

**Week 3 - 19 Mar 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. The Full Blood Count, Red Cell Reference Ranges 2. Abnormal RBC morphology and artefacts 3. RBC inclusions and blood parasites 4. Introduction to anaemia 5. Haemoglobinopathies	16, 19, 25, 27	

**Week 4 - 26 Mar 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. Microcytic anaemia 2. Normocytic anaemia 3. Macrocytic anaemia	19 - 28	

**Week 5 - 02 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. Introduction to Transfusion Science 2. Blood Group Systems - ABO, Rh, Kell, Kidd, Duffy, MNS & P	26 (plus additional readings provided)	

**Vacation Week - 09 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		

**Week 6 - 16 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. Antibody screening, identification & phenotyping of patients / units; cross-matching 2. Blood products - manufacture, storage & uses; Massive Transfusion Protocols	26 (plus additional readings provided)	<b>Written Assessment - Case study report</b> Due: Week 6 Friday (20 Apr 2018) 11:45 pm AEST

**Week 7 - 23 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. Direct Antiglobulin Testing 2. Haemolytic Disease of the Foetus and Newborn (HDFN) 3. Haemostasis - coagulation cascade 4. Platelet function, disorders and reference ranges	26 (plus additional readings provided); 37 - 42	

**Week 8 - 30 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. Anticoagulant therapy and monitoring including the NOAC's 2. The structure and function of white blood cells 3. Abnormal leucocyte morphology - malignant & non-malignant 4. WBC reference ranges	29, 43	

**Week 9 - 07 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. Lymphoid leukaemia and lymphoma 2. Introduction to the classification of the leukaemias	35, 36	

**Week 10 - 14 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
1. Myeloid proliferative disorders 2. WHO & FAB classifications	33, 34	

**Week 11 - 21 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Residential School	Laboratory Practical Manual	<b>Practical Assessment Due:</b> Week 11 Friday (25 May 2018) 11:45 pm AEST

**Week 12 - 28 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Exam Revision & Preparation - no lecture		

**Review/Exam Week - 04 Jun 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Exam Block		

**Exam Week - 11 Jun 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Exam Block		

## Assessment Tasks

### 1 Written Assessment - Case study report

**Assessment Type**

Written Assessment

**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, blood smear morphology, haematological parameters (provided by an automated analyzer) and biochemical changes (if any). You are then required to write a report (around 1,000 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 available on the Moodle site.

**Assessment Due Date**

Week 6 Friday (20 Apr 2018) 11:45 pm AEST

**Return Date to Students**

Week 8 Monday (30 Apr 2018)

**Weighting**

20%

**Minimum mark or grade**

Minimum 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 with justification to support the intended diagnosis. Does not discuss the final diagnosis but 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 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 or APA referencing system used with appropriate in-text references

### Referencing Style

- [American Psychological Association 6th Edition \(APA 6th edition\)](#)
- [Harvard \(author-date\)](#)

### Submission

Online

### Learning Outcomes Assessed

- Describe the physiological process of haematopoiesis
- Distinguish between normal and abnormal erythrocyte, leukocyte, reticulocyte and platelet morphology
- Describe the causes and diagnosis of selected haematologic and haemostatic disorders
- Interpret a full blood count and related basic haematological tests

### Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

## 2 Practical Assessment

### Assessment Type

Practical Assessment

### Task Description

You will be provided with a laboratory workbook on the moodle site. This workbook will contain all the tasks that need to be completed during the residential school block. It will also contain a series of short questions and patient reports to be completed in relation to the authentic 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 the 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.

### Assessment Due Date

Week 11 Friday (25 May 2018) 11:45 pm AEST

### Return Date to Students

Week 12 Friday (1 June 2018)

### Weighting

40%

### Minimum mark or grade

Minimum grade - 50 %

### Assessment Criteria

Each section will have respective assigned marks depending on the complexity of the task to be performed. A total mark obtained for the workbook would then be converted to a mark out of 40. 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 the weightage of marks associated with the tasks and subsequent questions/reports to be completed.

### Referencing Style

- [American Psychological Association 6th Edition \(APA 6th edition\)](#)
- [Harvard \(author-date\)](#)

### Submission

Online



### **Learning Outcomes Assessed**

- Distinguish between normal and abnormal erythrocyte, leukocyte, reticulocyte and platelet morphology
- Interpret a full blood count and related basic haematological tests
- Test and conduct quality control of basic haematological, immunohaematological and coagulation procedures in the laboratory.

### **Graduate Attributes**

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

## **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).

Calculator - non-programmable, no text retrieval, silent only

## 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