



BMSC12003 Haematology and Transfusion Science

Term 1 - 2020

Profile information current as at 26/04/2024 03:20 pm

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.

Corrections

Unit Profile Correction added on 06-05-20

The end of term examination has now been changed to an alternate form of assessment. Please see your Moodle site for details of the assessment.

Unit Profile Correction added on 06-05-20

The Residential School for this unit has been postponed and you will need to complete it at a later date. Further details about the residential school will be made available on Moodle in due course.

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 - 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: 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 Moodle 'Have Your Say'

Feedback

Return of the written assessment was not within the expected time-frame.

Recommendation

Priority be assigned to the marking and return of the written assessment.

Feedback from Moodle 'Have Your Say'

Feedback

The requirements for the written assessment were unclear.

Recommendation

Provide a more detailed explanation of the expectations of the case study report with specific examples provided.

Feedback from Moodle 'Have Your Say'

Feedback

Some of the tasks in the Residential School were unclear and caused some confusion.

Recommendation

The Laboratory Practical Manual to be revised to provide clearer explanation of all tasks. All tasks to be reviewed to ensure that they are relevant to current practice.

Feedback from Moodle 'Have Your Say' and Academic reflection.

Feedback

Lecture recordings were too long.

Recommendation

Consideration of revising the delivery of the material from a 2-hour lecture to a series of pre-recorded, shorter, 20 minute focused videos to cover the same weekly content. A 'live' 1-hour tutorial would continue to provide an opportunity for engagement.

Feedback from Unit Coordinator and Academic reflection

Feedback

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.

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

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: Spiral

BMSC12003

Prescribed

Rodak's Haematology, Clinical Principles and Applications

Edition: 6th (2018)

Authors: Elaine Keohane, Larry Smith and Jeanine Walenga

Elsevier

St Louis , Missouri , United States of America

ISBN: 9780323530453

Binding: Hardcover

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Supplementary

Immunohematology : Principles and Practice

Edition: 3rd (2010)

Authors: Eva D Quinley

Lippincott Williams and Wilkins

Philadelphia , PA , United States

ISBN: 978-0781782043

Binding: Hardcover

Additional Textbook Information

Rodak's Haematology, Clinical Principles and Applications and the **Clinical Haematology Atlas** are the prescribed texts for BMSC13001, **Advanced Haematology** while **Immunohematology : Principles and Practice** is the prescribed text for BMSC13011, **Advanced Transfusion Science**.

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)
- Virtual Microscopy Image Viewer

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

Schedule

Week 1 - 09 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Introduction to unit, Learning Outcomes, Assessments etc. 2. Haematopoiesis, cells of the blood, structure, morphology and function	N/A Rodak's Hematology: 1 & 4 and Clinical Hematology Atlas: 1 - 3	Tutorial - Overview of the unit and FAQ's

Week 2 - 16 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. RBC nomenclature, classification & production 2. Hb and iron production, metabolism and destruction 3. Automation and POC Testing	Rodak's Hematology: 1, 4 - 6; Clinical Hematology Atlas: 1 - 3; 10 - 13 Rodak's Hematology: 7 & 8 Rodak's Hematology: 11 & 12	Tutorial on Week 1 material

Week 3 - 23 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. The FBC, Reference Ranges 2. Abnormal RBC morphology, RBC inclusions 3. Introduction to the Anaemias and Haemoglobinopathies	Rodak's Hematology: 13 Rodak's Hematology: 13; Clinical Hematology Atlas: 12 & 13 Rodak's Hematology: 16 - 25; Clinical Hematology Atlas: 10 - 13	Tutorial on Week 2 material

Week 4 - 30 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Microcytic anaemia 2. Normocytic anaemia 3. Macrocytic anaemia	Rodak's Hematology: 17 & 24 Rodak's Hematology: 19 Rodak's Hematology: 18	Tutorial on Week 3 material

Week 5 - 06 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Transfusion Science - the Blood Group Systems	Modern Blood Banking: 2, 6 - 8; Immunohematology: 4, 9 - 11 Supplemental readings will also be made available for those without access to these supplemental texts	Tutorial on Week 4 material and discussion around Assessment #1 submission

Vacation Week - 13 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 20 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Transfusion Science - Ab screening, Identification and the Crossmatch 2. Blood components, product and the Massive Transfusion Protocol	Modern Blood Banking: 10 - 12; Immunohematology: 6 - 8 Modern Blood Banking: 13 - 19; Immunohematology: 13 - 15 Supplemental readings will also be made available for those without access to these supplemental texts	Tutorial on Week 5 material Written Assessment - Case study report Due: Week 6 Friday (24 Apr 2020) 11:45 pm AEST

Week 7 - 27 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic

1. Haemolytic Disease of the Foetus and Newborn (HDFN)	Modern Blood Banking: 20; Immunohematology: 16	Tutorial on Week 6 material
2. Introduction to Haemostasis - the Coagulation Cascade & Platelet Function and laboratory diagnosis of coagulation disorders	Supplemental readings will also be made available for those without access to these supplemental texts Rodak's Hematology: 35 - 39 & 41 - 42	

Week 8 - 04 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Anticoagulant therapy & monitoring 2. The structure and function of white blood cells	Rodak's Hematology: 40 Rodak's Hematology: 9; Clinical Hematology Atlas: 14	Tutorial on Week 7 material

Week 9 - 11 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
Abnormal leucocyte morphology, 'Benign' leucocyte disorders and investigations	Rodak's Hematology: 26;	Tutorial on Week 8 material

Week 10 - 18 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
Residential School - May 20th - 22nd inclusive, no lecture this week.	Practical Workbook	A tutorial will be held during the Residential School as a general discussion, Q&A session

Week 11 - 25 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
'Malignant' leucocyte disorders and investigations	Rodak's Hematology: 27 - 34; Clinical Hematology Atlas: 15 - 20	Tutorial on Week 9 material and discussion around Assessment #2 submission. Practical Assessment Due: Week 11 Friday (29 May 2020) 11:45 pm AEST

Week 12 - 01 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
Revision lecture and exam preparation.	N/A	Tutorial on Week 11 material

Review/Exam Week - 08 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
No scheduled class this week	N/A	Tutorial on Exam Preparation.

Exam Week - 15 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
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Term Specific Information

The Unit Coordinator for this Unit is Wayne Pederick who can be contacted by e-mail (w.pederick@cqu.edu.au) or via the Moodle forums.

Lectures will all be pre-recorded in smaller 'modules' and will be posted on the Moodle page.

There are weekly Tutorials that will be linked to Zoom and will also be recorded and posted to the Moodle page.

We will also be using a suite of virtual microscopy tools for cell morphology, you will require a web-browser and internet access to access these. There are also a range of free software applications available, details will be posted on the Moodle page.

There are two [Supplementary Texts](#) that may be helpful for the Transfusion Science modules and if you are planning to study Advanced Transfusion Science you may consider acquiring a copy of one of the other (this is not mandatory).

"Immunohematology: Principles and Practice", 3rd Edition, Eva D. Quinley. This text was the prescribed text for Advanced Transfusion Science but will be replaced by "Modern Blood Banking & Transfusion Practices", 7th Edition, Denise M. Harmening.

There will be a transition period where both texts will be referenced in both this unit and Advanced Transfusion Science.

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 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 1,000 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. 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 (24 Apr 2020) 11:45 pm AEST

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

Return Date to Students

Week 8 Friday (8 May 2020)

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: 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 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 (29 May 2020) 11:45 pm AEST

Return Date to Students

Review/Exam Week Friday (12 June 2020)

Weighting

40%

Minimum mark or 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).

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