



# BMSC13011 *Advanced Transfusion Science*

## Term 2 - 2020

Profile information current as at 04/05/2024 03:32 pm

All details in this unit profile for BMSC13011 have been officially approved by CQUUniversity 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 enables you to develop an advanced knowledge and understanding of the principles of Transfusion Science, building on the knowledge and understanding of the principles gained in earlier units. You will gain vital knowledge on topics such as safe blood storage and handling, blood typing and the detection and identification of antibodies significant in transfusion. You will also perform compatibility testing and discuss the potential adverse outcomes of blood transfusions plus pre-natal, antenatal and postnatal screening. 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. The theoretical and practical sessions will allow you to develop skills in critical steps necessary in providing safe blood for transfusion in routine and emergency situations.

#### 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

Pre-requisites: BMSC12003 - Haematology and Transfusion Science and BMSC13009 - Immunology

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. **Case Study**

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 Student feedback

##### **Feedback**

Students generally appreciated the Residential School increased to four days from three providing additional time to practise skills prior to the Practical Assessment.

##### **Recommendation**

Continue residential school format.

#### Feedback from Student feedback

##### **Feedback**

Students valued the input from an industry professional to ensure currency of information and relevance to requirements of the profession.

##### **Recommendation**

Continue to utilise industry professionals in the delivery of this unit.

#### Feedback from Student feedback and self reflection

##### **Feedback**

Some aspects of the laboratory manual were considered difficult to follow.

##### **Recommendation**

The laboratory manual will be reviewed and updated for 2020.

#### Feedback from Self reflection

##### **Feedback**

Some lectures need to be refreshed

##### **Recommendation**

Continue to refresh lectures to ensure currency and relevance.

#### Feedback from Student feedback

##### **Feedback**

Some students felt that scaffolding of transfusion content from the pre-requisite unit could be improved.

##### **Recommendation**

Liaise with BMSC12003 unit coordinator to ensure appropriate scaffolding of knowledge.

## Unit Learning Outcomes

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

1. Discuss the production, labelling, storage and transportation of human blood products and their medical uses
2. Perform advanced testing in Transfusion Science including pre-transfusion, compatibility testing, antenatal / postnatal / neonatal screening and the testing for autoantibodies
3. Demonstrate the correct interpretation and reporting of test results in Transfusion Science
4. Examine the role of antibodies in erythrocyte destruction and their effect on the principles of transfusion including adverse transfusion outcomes
5. Critique the importance of quality control in transfusion science and explain the results
6. Describe the factors contributing to adverse transfusion outcomes and their effects in transfusion science.

**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

**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



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
<b>1 - Case Study - 20%</b>				•		
<b>2 - Practical Assessment - 30%</b>		•	•			
<b>3 - Laboratory/Practical - 0%</b>		•	•			
<b>4 - Online Test - 50%</b>	•			•	•	•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
<b>1 - Communication</b>	•	•	•	•	•	•
<b>2 - Problem Solving</b>				•		
<b>3 - Critical Thinking</b>	•	•	•	•	•	•
<b>4 - Information Literacy</b>		•	•	•	•	•

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
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 - Case Study - 20%	•	•	•	•						
2 - Practical Assessment - 30%	•	•	•	•						
3 - Laboratory/Practical - 0%	•	•	•	•				•		
4 - Online Test - 50%	•	•	•	•						

## Textbooks and Resources

### Textbooks

BMSC13011

#### Prescribed

##### **MODERN BLOOD BANKING AND TRANSFUSION PRACTICES**

Edition: 7th (2018)

Authors: Denise M Harmening

F.A. Davis Company

Pennsylvania , PA , USA

ISBN: 9780803668881

Binding: Hardcover

BMSC13011

#### Supplementary

##### **Basic & Applied Concepts of Blood Banking and Transfusion Practices**

Edition: 4th (2016)

Authors: Paula R Howard

Elsevier - Health Sciences Division

St Louis , Missouri , USA

Binding: Paperback

BMSC13011

#### Supplementary

##### **IMMUNOHEMATOLOGY: PRINCIPLES AND PRACTICE**

Edition: 3rd (2011)

Authors: Eva D. Quinley

Lippincott Williams & Wilkins

Sydney , NSW , Australia

ISBN: 978-0781782043

Binding: Hardcover

BMSC13011

#### Supplementary

##### **Transfusion and Transplantation Science**

Edition: 2nd edn (2017)

Authors: Avent , Neil

Oxford University Press UK

Oxford , UK

ISBN: 9780198735731

Binding: Paperback

#### 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). eBooks can be purchased at the publisher's website.

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

**Roxina Sharma** Unit Coordinator  
[r.r.sharma@cqu.edu.au](mailto:r.r.sharma@cqu.edu.au)

## Schedule

### Week 1 - 13 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Introduction - Genetics and Immunological Principles	Part I - Chapters 2 & 3	

### Week 2 - 20 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Blood and Blood Components	Part III - Chapters 13, 14, 15, 16, 18	Week 2 Tutorial questions

### Week 3 - 27 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
ABO & Rh Blood Group Systems	Part I - Chapter 4 Part II - Chapters 6, 7	Week 3 Tutorial - Case studies on group discrepancy and mixed field reactions.

### Week 4 - 03 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Other Blood Groups and the HLA System	Part II - chapters 8, 9, 23, 24	

### Week 5 - 10 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Principles of Serologic and Compatibility Testing	Part II - Chapters 5, 10, 11	Week 5 tutorial - Antibody identification and crossmatching <b>Written Assessment - Case study 20%</b> Due date: 11:55 PM Friday 04/09/2020 This assessment comprises 20% of the overall unit mark.

### 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.		

### Week 6 - 24 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Clinical Conditions Associated with Transfusion Science	Part III - Chapters 17 & 21	

**Week 7 - 31 Aug 2020**

Module/Topic	Chapter	Events and Submissions/Topic
Haemolytic Disease of the Foetus and the Newborn.	Part III – Chapter 20	Week 7 Tutorial questions  <b>Written Assessment</b> Due: Week 7 Friday (4 Sept 2020) 11:45 pm AEST

**Week 8 - 07 Sep 2020**

Module/Topic	Chapter	Events and Submissions/Topic
Transfusion of Specific Blood Fractions and Bone Marrow and Organ Transplantation	Part III - Chapter 16, 19	

**Week 9 - 14 Sep 2020**

Module/Topic	Chapter	Events and Submissions/Topic
Quality Assurance, Quality Control , Regulatory and Compliance Issues	Part V – Chapters 25, 26, 27, 28, 29	

**Week 10 - 21 Sep 2020**

Module/Topic	Chapter	Events and Submissions/Topic
Advancements in Transfusion Science & Transfusion Science in Summary	Part II – Chapter 12	

**Week 11 - 28 Sep 2020**

Module/Topic	Chapter	Events and Submissions/Topic
Unit revision and exam preparation.	On-line Q&A session	

**Week 12 - 05 Oct 2020**

Module/Topic	Chapter	Events and Submissions/Topic
Residential School - TBA	Practical Manual Laboratory Workbook Practical Assessment	During the Residential School, you will be assessed on your competence to safely perform and correctly interpret and analyse a number of blood banking techniques. <b>Practical Manual:</b> Pass/Fail <b>Laboratory Workbook:</b> Pass/Fail <b>Practical Assessment: 30%</b>

**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
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## 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

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.

There has been a change to the recommended textbook. If you do not already have a copy of "Immunohematology: Principles and Practice", 3rd Edition, Eva D. Quinley, which was the prescribed textbook from the pre-requisite Haematology and Transfusion Science from year 2, then consider "Modern Blood Banking and transfusion Practices", 7th Edition, Denise M Harmening textbook if you wish to purchase a print copy. However, 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. The content in both textbooks is quite similar so you will not be disadvantaged by having either textbook. While we are in the transition period the prerecorded lectures and tutorials will contain content from both textbooks.

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 Written Assessment

#### Assessment Type

Case Study

#### Task Description

You will be provided an authentic clinical case study on the unit Moodle site. The following information regarding the case will be available to you: a pathology request form with patient information, tests requested and clinical notes for a potential blood transfusion. You are required to answer the related questions using the assessment template and the marking guide available on the Moodle site. Answers to be provided are a combination of short and long answers. A guide to number of words per question is provided within the assessment template.

#### Assessment Due Date

Week 7 Friday (4 Sept 2020) 11:45 pm AEST

Answers must be submitted on the template provided and a PDF version uploaded to the Moodle site.

#### Return Date to Students

Week 9 Friday (18 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 answers are to be presented in the required template; clarity of purpose and coherence of expression (spelling, grammar, syntax); clear and organised flow of information. Where required, provide a clear overview and overall summary of the case study.

**Request Form:** Provides vital patient information and necessary clinical history for the case; does not provide the final outcome rather supports the intended outcome via result analysis. Materials and Methods: briefly describes all the methods used to aid in diagnosis; discusses any further tests to be employed in order to confirm the diagnosis.

**Results:** All data presented clearly; layout is clear with further tests and expected results discussed.

**Discussion:** Clear discussion of the results with correct scientific terminology, nomenclature and notation for antibody

and antigen specificities, supporting arguments and reasoning for arriving at the final diagnosis.

### Referencing Style

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

### Submission

Online

### Learning Outcomes Assessed

- Examine the role of antibodies in erythrocyte destruction and their effect on the principles of transfusion including adverse transfusion outcomes

### Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

## 2 Practical Assessment

### Assessment Type

Practical Assessment

### Task Description

**Residential School Practical Assessment (30%):** 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. You must achieve a minimum of 50% marks in order to pass this assessment. 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

The practical assessment conducted on the last session of the residential will assess your ability to perform blood banking techniques and accurately interpret results to achieve safe transfusion outcomes. You will be provided with a patient sample and a number of donor units. You will be expected to perform a series of laboratory tests to determine the compatibility of the donor units for safe transfusion, preventing any adverse transfusion outcomes.

### Referencing Style

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

### Submission

Offline

### Learning Outcomes Assessed

- Perform advanced testing in Transfusion Science including pre-transfusion, compatibility testing, antenatal / postnatal / neonatal screening and the testing for autoantibodies
- Demonstrate the correct interpretation and reporting of test results in Transfusion Science

### Graduate Attributes

- Communication
- Problem Solving

- Critical Thinking
- Information Literacy

### 3 Laboratory / Practical Manual

#### Assessment Type

Laboratory/Practical

#### Task Description

**Laboratory / Practical Manual:** Individual experimental activities during the residential school will provide hands-on experience of transfusion science techniques used in pathology laboratories. You will be expected to perform a number of practical tasks 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 of student engagement and understanding of the principles behind the Immunohaematological 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):** The laboratory workbook template will contain a series of short answer questions to be completed in relation to the practical tasks performed. Completion of the workbook will provide evidence of student engagement and understanding of the principles behind the immunohaematological tests. Students may submit their laboratory workbook at the end of the residential school or submit a PDF version online by the due date. This assessment is pass/fail. A pass is required in order to successfully complete the unit.

#### 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

Each task is to be checked by the laboratory supervisor on completion. Laboratory supervisor will provide immediate verbal feedback on each task on the hands-on aspect of this assessment item. Final answers are to be submitted online via the Moodle page.

#### 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 advanced testing in Transfusion Science including pre-transfusion, compatibility testing, antenatal / postnatal / neonatal screening and the testing for autoantibodies
- Demonstrate the correct interpretation and reporting of test results in Transfusion Science

#### Graduate Attributes

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

### 4 Online Test

**Assessment Type**

Online Test

**Task Description**

Complete an online test.

The online test will consist of three sections;

Section A: Short answer questions

Section B: Long answer questions

Section C: Case studies

**Assessment Due Date**

During the CQUniversity 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, long answer and case study questions.

**Referencing Style**

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

**Submission**

Online

**Learning Outcomes Assessed**

- Discuss the production, labelling, storage and transportation of human blood products and their medical uses
- Examine the role of antibodies in erythrocyte destruction and their effect on the principles of transfusion including adverse transfusion outcomes
- Critique the importance of quality control in transfusion science and explain the results
- Describe the factors contributing to adverse transfusion outcomes and their effects in transfusion science.

**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