COURSE OUTLINE

# MLS100 Haematology

**School:** School of Health - Biomedicine

2025 | Semester 2

| | | |
|---|---|---|
| UniSC Sunshine Coast | BLENDED LEARNING | Most of your course is on campus but you may be able to do some components of this course online. |

*Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.*

## 1. What is this course about?

### 1.1. Description

This course provides an introduction to haematology, an area of general pathology that is concerned with diseases that affect the blood, such as blood clotting disorders, anaemias, leukaemias and haemoglobinopathies. Blood transfusion will also be discussed during the course. Competencies in haematological techniques conducted in pathology laboratories including full blood count, microscopy and the review of blood films, white cell differential counts, staining methods for microscopy, blood grouping and coagulation tests will be assessed.

### 1.2. How will this course be delivered?

| ACTIVITY | HOURS | BEGINNING WEEK | FREQUENCY |
|---|---|---|---|
| **BLENDED LEARNING** | | | |
| **Learning materials** – Weekly interactive learning guides | 1.5hrs | Week 1 | 12 times |
| **Tutorial/Workshop 1** – Refer to schedule | 2hrs | Week 2 | 6 times |
| **Laboratory 1** – Weekly on campus laboratory | 3hrs | Week 1 | 13 times |

### 1.3. Course Topics

- Introduction to Haematology
- Blood Cell Development
- Erythrocytes and Anaemias
- Leucocytes and Leukaemias
- Counting Blood Cells
- Platelets and Coagulation Pathways
- Platelet & Coagulation Tests
- Introduction to Immunohaematology
- Automation and QC

## 2. What level is this course?

100 Level (Introductory)

Engaging with discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Limited or no prerequisites. Normally, associated with the first full-time study year of an undergraduate program.

## 3. What is the unit value of this course?

12 units

## 4. How does this course contribute to my learning?

| COURSE LEARNING OUTCOMES<br>On successful completion of this course, you should be able to... | GRADUATE QUALITIES<br>Completing these tasks successfully will contribute to you becoming... |
|---|---|
| 1 Identify the different components, production and functions of blood. | Knowledgeable<br>Creative and critical thinker<br>Engaged<br>Communication<br>Problem solving<br>Organisation<br>Applying technologies<br>Information literacy |
| 2 Understand the theory and interpret the results of routine haematology laboratory tests. | Knowledgeable<br>Creative and critical thinker<br>Engaged<br>Communication<br>Collaboration<br>Problem solving<br>Organisation<br>Applying technologies<br>Information literacy |
| 3 Identify and describe the features, classification and diagnostic tests for the major haematological malignancies and disorders outlined. | Knowledgeable<br>Creative and critical thinker<br>Engaged<br>Communication<br>Collaboration<br>Problem solving<br>Organisation<br>Applying technologies<br>Information literacy |
| 4 Show competency in routine practical techniques in haematology | Knowledgeable<br>Creative and critical thinker<br>Engaged<br>Communication<br>Collaboration<br>Problem solving<br>Organisation<br>Applying technologies<br>Information literacy |

## 5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

### 5.1. Pre-requisites

Enrolled in Program UB001, SC385, SC211, SC357 or SC355

### 5.2. Co-requisites

Not applicable

### 5.3. Anti-requisites

Not applicable

### 5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

### 5.5. Microcredential Information

Not applicable

## 6. How am I going to be assessed?

### 6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

### 6.2. Details of early feedback on progress

You will be introduced to patient case studies and can attempt calculations, haematology terminology and morphology identification through the in-class activities that will also provide you with feedback and help prepare you for the assessment tasks in the course.

### 6.3. Assessment tasks

| DELIVERY MODE | TASK NO. | ASSESSMENT PRODUCT | INDIVIDUAL OR GROUP | WEIGHTING % | WHAT IS THE DURATION / LENGTH? | WHEN SHOULD I SUBMIT? | WHERE SHOULD I SUBMIT IT? |
|---|---|---|---|---|---|---|---|
| All | 1 | Artefact - Technical and Scientific | Individual | 20% | 30 minutes per case report | Throughout teaching period (refer to Format) | In Class |
| All | 2a | Practical / Laboratory Skills | Individual | 20% | 120min + 10min perusal | Week 9 | In Class |
| All | 2b | Practical / Laboratory Skills | Individual | 30% | 150min + 10 min perusal | Week 13 | In Class |
| All | 3 | Examination - Centrally Scheduled | Individual | 30% | 120min + 10 min perusal | Exam Period | Exam Venue |

**All - Assessment Task 1:** MLS100 Haematology Case Reports

| | |
|---|---|
| **GOAL:** | To assess student interpretation of haematology results, examination of a blood film and reporting of case studies using appropriate haematology terminology and conventions. |
| **PRODUCT:** | Artefact - Technical and Scientific |
| **AUTHORSHIP STATEMENT:** | |
| **FORMAT:** | On paper, in laboratory classes in weeks 4, 5, 6 and 7.<br>Further directions about the assessment requirements will be available in the tutorials leading up to and during the assessment task, and information will be provided to students by the course coordinator on the MLS100 Haematology Canvas site. |

**CRITERIA:**

| No. | | Learning Outcome assessed |
|---|---|---|
| 1 | Calculate & interprete haematology parameters of automated results. | 2 |
| 2 | Provide comment on the blood film | 1 4 |
| 3 | Complete differential count | 4 |
| 4 | Generate report on blood film and autmated results | 2 3 |
| 5 | Explain significance of patient presentation, the significance of results and any recommendations for further testing. | 2 3 |

| | |
|---|---|
| **GENERIC SKILLS:** | Communication, Problem solving, Organisation, Applying technologies, Information literacy |

**All - Assessment Task 2a:** MLS100 Mid-semester theory & practical assessment

| | |
|---|---|
| **GOAL:** | To develop satisfactory laboratory skills and competencies in Haematology that would meet the requirements of AIMS for the training of medical laboratory scientists. |
| **PRODUCT:** | Practical / Laboratory Skills |
| **AUTHORSHIP STATEMENT:** | |
| **FORMAT:** | The theory & practical assessment will take place during the regular practical class time in week 9. The theory & practical assessment will consist of a series of practical tests designed to assess your competency in haematology techniques and related theory. |

**CRITERIA:**

| No. | | Learning Outcome assessed |
|---|---|---|
| 1 | Perform various haematological techniques e.g. differential count, coagulation assays | 4 |
| 2 | Identification of blood cell morphology using light microscopy and still images | 1 3 4 |
| 3 | Write report on case, haematology results and blood film. | 1 2 3 |
| 4 | Interpret clinical history provided and haematology results generated or provided | 2 3 |

| | |
|---|---|
| **GENERIC SKILLS:** | Communication, Problem solving, Organisation, Applying technologies, Information literacy |

**All - Assessment Task 2b:** MLS100 Final Practical Assessment

| | |
|---|---|
| **GOAL:** | To develop satisfactory laboratory skills and competencies in Haematology that would meet the requirements of AIMS for the training of medical laboratory scientists. |
| **PRODUCT:** | Practical / Laboratory Skills |
| **AUTHORSHIP STATEMENT:** | |
| **FORMAT:** | The practical assessment will take place during the regular practical class time in week 13. The practical assessment will consist of a series of practical tests designed to assess your competency in haematology techniques and related theory. |
| **CRITERIA:** | |

| No. | | Learning Outcome assessed |
|---|---|---|
| 1 | Satisfactory performance of haematological techniques e.g. differential count, coagulation assays | 4 |
| 2 | Interpret clinical history provided and haematology results generated or provided | 2 3 |
| 3 | Identification of blood cell morphology using light microscopy and still images | 1 3 4 |
| 4 | Write report on case, haematology results and blood film. | 1 2 3 |

| | |
|---|---|
| **GENERIC SKILLS:** | Communication, Problem solving, Organisation, Applying technologies, Information literacy |

**All - Assessment Task 3:** MLS100 Final theory examination

| | |
|---|---|
| **GOAL:** | To assess students understanding and application of haematology course content covered in learning materials, tutorials and laboratory practical classes. |
| **PRODUCT:** | Examination - Centrally Scheduled |
| **AUTHORSHIP STATEMENT:** | |
| **FORMAT:** | Centrally scheduled invigilated on-campus exam consisting of multiple choice questions, short answer questions and case studies. |
| **CRITERIA:** | |

| No. | | Learning Outcome assessed |
|---|---|---|
| 1 | Demonstrate ability to recall and apply information from the MLS100 Haematology learning materials, tutorial and practical laboratory classes. | 1 2 3 |
| 2 | Use haematology knowledge in case scenarios to generate haematology reports, to interpret or suggest further tests to support differential diagnosis. | 1 2 3 4 |

| | |
|---|---|
| **GENERIC SKILLS:** | Communication, Problem solving, Organisation, Applying technologies, Information literacy |

## 7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

### 7.1. Schedule

| PERIOD AND TOPIC | ACTIVITIES |
|---|---|
| 1. Introduction to Haematology | Blood cell types: structure and function<br>Haemopoiesis<br>Safety in the Haematology laboratory<br>Care and use of the microscope |
| 2. Counting and Automation | Introduction to FBC and red cell parameters<br>Counting of blood cells<br>Automation |
| 3. Introduction to anaemia | Normocytic anaemias, blood film microscopy, differential counts, staining & reticulocytes |
| 4. Microcytic anaemias | Blood film morpholgy, iron deficiency anaemias, thalassemia, Hb electrophoresis |
| 5. Macrocytic anaemias | Megaloblastic anaemia, liver disease |
| 6. Normal & non-malignant leucocytes | IM, toxic changes, infections |
| 7. Lymphoid leukaemias | ALL, CLL |
| 8. Myeloid leukaemia | AML, CML |
| 9. Haemostasis | Normal haemostasis<br>Vascular, platelet and coagulation phases<br>Mid-semester practical and theory exam |
| 10. Coagulation disorders and investigations | Routine tests for haemostasis, disorders of haemostasis, liver disease, anti-coagulation |
| 11. Introduction to immunohaematology | Antigens, antibodies, role of lymphocytes |
| 12. Introduction to Blood Banking | ABO, RhD, crossmatch, blood products |
| 13. No learning material. | Final practical assessment |

## 8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

### 8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

| REQUIRED? | AUTHOR | YEAR | TITLE | EDITION | PUBLISHER |
|---|---|---|---|---|---|
| Recommended | A. Victor Hoffbrand,David P. Steensma | 2019 | Hoffbrand's Essential Haematology | 8th | John Wiley & Sons |
| Recommended | Elaine Keohane,Larry Smith,Jeanine Walenga | 2019 | Rodak's Hematology | 6th | Saunders |

### 8.2. Specific requirements

To successfully complete the UB001 Bachelor of Medical Laboratory Science (Pathology) and meet the accreditation requirements of AIMS, UB001 students enrolled in MLS100 must attend and participate in all on-campus practical classes. The final assessments in MLS100 will be invigilated.

## 9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a moderate level of health and safety risk exists. Moderate risks are those associated with laboratory work such as working with chemicals and hazardous substances. You will be required to undertake laboratory induction training and it is also your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff

# 10. What administrative information is relevant to this course?

## 10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

## 10.2. Assessment: Additional Requirements

**Eligibility for Supplementary Assessment**

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

## 10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

## 10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

## 10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

## 10.6. General Enquiries

**In person:**

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

**Tel:** +61 7 5430 2890
**Email:** studentcentral@usc.edu.au