



COURSE OUTLINE

MLS110 Haematology

Course Coordinator: Rosemary Rasmussen (rrasmuss@usc.edu.au) **School:** School of Health and Behavioural Sciences

2021 | Semester 2

USC Sunshine Coast

ON CAMPUS

Most of your course is on campus but you may be able to do some components of this course online.

Please go to the USC website 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, lymphomas, leukaemias, thrombosis, coagulation disorders and haemoglobinopathies. Blood transfusion and bone marrow transplantation also will be discussed during the course. Competencies in haematological techniques conducted in pathology laboratories including, complete blood count, blood grouping, blood films, differential count, staining methods for microscopy, and coagulation tests will be assessed.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ON CAMPUS			
Tutorial/Workshop 1 – Weekly Zoom tutorial	1hr	Week 1	13 times
Laboratory 1 – Weekly face-to-face laboratory	2hrs	Week 1	13 times
Lecture – Weekly recorded lecture material	1hr	Week 1	13 times

1.3. Course Topics

1. Introduction to Haematology
2. Blood Cell Development
3. Erythrocytes and Erythrocyte Disorders
4. Leucocytes and Leucocyte Disorders
5. Counting Blood Cells
6. Anaemias
7. Platelets and Blood Coagulation Pathways
8. Coagulation Tests
9. Introduction to Blood Transfusion

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	GRADUATE QUALITIES
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...
1 Identify the different components, production and functions of blood.	Knowledgeable Creative and critical thinker
2 Understand the theory and interpret the results of routine haematology laboratory tests.	Knowledgeable Creative and critical thinker
3 Identify and describe the features, classification and diagnostic tests for the major haematological malignancies and disorders outlined.	Knowledgeable Creative and critical thinker
4 Show competency in routine practical techniques in haematology	Knowledgeable Engaged

5. Am I eligible to enrol in this course?

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Enrolled in Program 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

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

Formative and summative quizzes will be available in the first third of the course to provide feedback on your academic 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	Quiz/zes	Individual	30%	20 mins per quiz	Throughout teaching period (refer to Format)	Online Assignment Submission
All	2	Case Study	Group	20%	1000 words +/- 10%	Week 9	Online Assignment Submission
All	3	Practical / Laboratory Skills	Individual	50%	4-hours	Refer to Format	In Class

All - Assessment Task 1: Review Quizzes

GOAL:	Using haematology knowledge and critical thinking, satisfactorily identify the different components, production and functions of blood and how they are analysed in the laboratory	
PRODUCT:	Quiz/zes	
FORMAT:	Multiple choice/short answer questions	
CRITERIA:	No.	Learning Outcome assessed
	1	You will be assessed on your ability to: - recall information from the MLS110 Haematology teaching materials
	2	solve problems based on theoretical material and information covered in lectures, laboratories and tutorials

All - Assessment Task 2: Case Studies

GOAL:	Complete case studies describing the features, interpretation and diagnostic tests for erythrocyte disorders (anaemia).	
PRODUCT:	Case Study	
FORMAT:	Students will work in pairs to complete two haematology case studies related to an erythrocyte disorder (anaemia). While working as a team each student will contribute to both case studies. Students will deliver their case studies online through a blended learning approach for each case study in week 9. Assessment will be based on overall group performance of the completed case studies, rather than on an individual basis. 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 MLS110 Haematology Blackboard site.	
CRITERIA:	No.	Learning Outcome assessed
	1	You will be assessed on your ability to: - Calculate and interpret parameters of automated results
	2	Provide comments on the peripheral blood films
	3	Complete differential white cell counts
	4	Provide summaries of the patients including a differential diagnosis
	5	Explain with reason the patient presentation, the significance of the results and tests and any further recommendations for the patient.

All - Assessment Task 3: Practical Haematology Exam

GOAL:	To develop satisfactory laboratory skills and competencies in Haematology that would meet the requirements of the QLD pathology industry for training medical science technicians. Students must complete the training for this assessment in the preceding labs before attending the exam, this includes a minimum of 80% attendance of the laboratory practical. This is a health and safety requirement.
PRODUCT:	Practical / Laboratory Skills
FORMAT:	Submit: Weeks 11 and 12. You will bring in records of the preceding lab training sessions to gain entrance into this exam. Your tutor will sign your lab book for each lab and associated lab work completed. This is your evidence that you have been appropriately trained and can demonstrate appropriate health and safety measures to undertake this exam at industry standard. The practical exam will be 4-hours in duration (over 2 x 2hr sessions) and will take place during the practical classes in weeks 11 and 12. The practical exam will consist of a series of practical tests designed to assess your competency in haematology techniques.

CRITERIA:

No.		Learning Outcome assessed
1	You will be assessed on: - knowledge and practice of the safety requirements in the haematology laboratory	4
2	interpreting the results from basic haematological techniques covered during the practical classes	2
3	performance of a differential count on a blood film	4
4	knowledge of specific staining procedures in haematology	2 3 4
5	identification of blood film morphology using light microscopy and still images	1 4

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. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
1 Introduction to Haematology	<ul style="list-style-type: none"> • Blood cell types: structure and function • Safety in the Haematology laboratory • Specimen collection • Care and use of the microscope
2 Blood Cell Development and Examination	<ul style="list-style-type: none"> • Haematopoiesis • Preparing and examining a blood film • Bone marrow preparation and examination
3 Erythrocytes	<ul style="list-style-type: none"> • Normal red blood cell production & destruction • Membrane physiology and structure • Haemoglobin and iron metabolism • Routine tests for RBC
4 Leucocytes	<ul style="list-style-type: none"> • Leucocyte development, structure, function • Differential count • Other tests for white blood cells • Normal bone marrow morphology
5 Blood Cell Counting	<ul style="list-style-type: none"> • Automated full blood analysers • Discrepancies in instrument counts • Correlation of the peripheral blood film and full blood count
6 Introduction to erythrocyte disorders	<ul style="list-style-type: none"> • General principles • Classification • Diagnostic tests
7 Anaemia	<ul style="list-style-type: none"> • Common anaemia disorders • Approach to diagnosis
8 Platelets & Blood Coagulation Pathways	<ul style="list-style-type: none"> • Platelet production, structure & function • Normal haemostasis & coagulation • Vascular, platelet and coagulation phases
9 Coagulation Tests	<ul style="list-style-type: none"> • Routine tests for haemostasis • Disorders of haemostasis • Fibrinolysis • Fibrin split and degradation products • Thrombosis and Antithrombotic Therapy
10 Blood Transfusion and Banking	<ul style="list-style-type: none"> • Blood typing & basic immunology concepts • Haemolytic disease of the newborn
11 Introduction to Leucocyte Disorders	<ul style="list-style-type: none"> • General principals • Non-malignant leucocyte disorders • Diagnostic tests
12 Malignant Leucocyte Disorders	<ul style="list-style-type: none"> • General principles • Leukaemias and lymphomas • Diagnostic tests
13 Advanced Haematology Concepts	<ul style="list-style-type: none"> • Introduction to molecular diagnostics • Cytogenetics, cytochemistry, flowcytometry

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 Blackboard site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	PUBLISHER
Required	Elaine Keohane,Larry Smith,Jeanine Walenga	2019	Rodak's Hematology	Saunders

8.2. Specific requirements

MLS110 is structured to provide you with knowledge and practical skills necessary to meet industry established proficiency standards. It is therefore an expectation of both the University and our industry partners that you will participate in all of the directed study activities (lectures, laboratories, tutorials) and demonstrate satisfactory proficiency in the practical assessment in order to evidence your preparedness for the placement. To gain such proficiency you must attend and participate in at least 80% of the laboratory practicals throughout the semester before you are permitted to complete Assessment Task 3 (practical exam) and you must attain a minimum 50% result for Task 3. You are required to complete the WHS laboratory induction and successfully complete the quiz before the first practical session, wear appropriate personal protective equipment (PPE) during the practical component, including covered, non-slip shoes, laboratory coat/gown and safety glasses, long hair should be tied back.

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 Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2. Assessment: Additional Requirements

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%

The course is graded using the Standard Grading scale

You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.

- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.

- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.5. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.6. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, , injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email AccessAbility@usc.edu.au or call 07 5430 2890.

10.7. 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
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: <http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.8. General Enquiries

In person:

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

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au