

# BMS3006: TRANSFUSION SCIENCE AND TECHNOLOGY

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## Effective Term

Semester A 2025/26

## Part I Course Overview

### Course Title

Transfusion Science and Technology

### Subject Code

BMS - Biomedical Sciences

### Course Number

3006

### Academic Unit

Biomedical Sciences (BMS)

### College/School

College of Biomedicine (BD)

### Course Duration

One Semester

### Credit Units

3

### Level

B1, B2, B3, B4 - Bachelor's Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

BMS3011 Hematology II (Pre-requisites requirement are applicable for students admitted /changed to the Major with Catalogue Term from Semester A 2019/2020 and thereafter)

### Precursors

Nil

### Equivalent Courses

Nil

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

The course will provide an extended understanding on the principles of the human blood groups, their classification, genetics, biochemical and serological characteristics as well as the principles of haemostatic mechanism. In laboratory training sessions, students will learn how to identify hemostatic disorders and perform coagulation test. Student will also have opportunity to gain practical experience in widely used techniques and strategies in blood transfusion practices and bleeding blanking, including blood donor screening, component preparation and use, blood grouping, antibody screening, cross-matching for blood transfusion and tissue-typing, the skills accumulated during the training sessions will strengthen students' ability on performing laboratory testing and coagulation tests.

### Course Intended Learning Outcomes (CILOs)

CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Understand the principle of blood coagulation	x		
2	Perform coagulation tests		x	
3	Identify the major types of the human blood groups and their characteristics	x		
4	Analyse clinical issues in transfusion sciences and apply it into relevant conditions	x		
5	Carry out the preparation work and storage of blood components		x	
6	Compare and contrast the various techniques used in blood transfusion practices		x	x
7	Communicate with medical laboratory scientists in different formats (e.g. verbally speaking/ report writing)		x	x

#### A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

#### A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

#### A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

### Learning and Teaching Activities (LTAs)

LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures, Tutorials and group discussions	Lectures and online teaching material (e.g. Online readings) will enable students to acquire knowledge regarding to the subjects in transfusion sciences	1, 2, 3, 4

2	Practical session	Laboratory sessions will allow students to develop practical skills	1, 2, 3, 4	
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**Assessment Tasks / Activities (ATs)**

	ATs	CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?
1	Laboratory sessions	1, 2, 3	24	-	Yes
2	Paper Presentation	1, 2, 3, 4, 5	16	-	Yes

**Continuous Assessment (%)**

40

**Examination (%)**

60

**Examination Duration (Hours)**

2-3

**Minimum Continuous Assessment Passing Requirement (%)**

40

**Minimum Examination Passing Requirement (%)**

40

**Additional Information for ATs**

Practical Examination ( duration: 2-3 hours ): 30%

Written Examination ( duration: 2-3 hours ): 30%

Examination total: 60%

Minimum Passing Requirement:

- Continuous assessment: 40%; and
- Written examination: 40%; and
- Practical examination: 40%.

Please note that attendance in all practical sessions is mandatory for the completion of the course. Practical sessions are an integral part of the curriculum, providing hands-on learning experiences and essential for medical laboratory science training. Failure to attend practical sessions (an unauthorized absence and/or lateness) may result in a deduction of marks or, in extreme cases, may lead to failure in the course.

**Assessment Rubrics (AR)****Assessment Task**

1. Laboratory sessions

**Criterion**

Performance in practical classes and written practical reports will be evaluated.

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not even reaching marginal levels

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**Assessment Task**

2. Mid-term report

**Criterion**

A reflection paper on the theoretical concepts that have been discussed in class or a case study taken from everyday life.

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not even reaching marginal levels

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**Assessment Task**

3. Final examination

**Criterion**

To test students' application of material taught in class and evaluate their performance based on their performance on the exam.

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not even reaching marginal levels

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## Part III Other Information

### Keyword Syllabus

- Blood bank laboratory
- Antibody detection and identification
- Blood group and the genetic basis of blood group
- Pre-transfusion testing procedures including computer crossmatch
- Hemolytic diseases and autoimmune hemolytic anemia.
- Red Blood cells
- White Blood cells
- Plasma
- Clotting factors
- Platelets
- Adverse effects of transfusion
- Risk and benefits of transfusions
- Aphaeresis in transfusion practice
- Transfusion transmitted diseases

### Reading List

#### Compulsory Readings

Title	
1	Claudia Cohn. The AABB Technical Manual, American Association of Blood Bank , (21st Edition) 2023.
2	Paula R. Howard. Basic & Applied Concepts of Blood Banking and Transfusion Practices

#### Additional Readings

Title	
1	Transfusion Journal - AABB
2	Journal of Hematology and Transfusion