

# BMS3003B: ADVANCED CLINICAL CHEMISTRY

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**Effective Term**

Semester A 2022/23

## Part I Course Overview

**Course Title**

Advanced Clinical Chemistry

**Subject Code**

BMS - Biomedical Sciences

**Course Number**

3003B

**Academic Unit**

Biomedical Sciences (BMS)

**College/School**

Jockey Club College of Veterinary Medicine and Life Sciences (VM)

**Course Duration**

One Semester

**Credit Units**

2

**Level**

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

**Medium of Instruction**

English

**Medium of Assessment**

English

**Prerequisites**

BMS2003 Clinical Chemistry or equivalent (BMS2003B Clinical Chemistry or equivalent) BMS2008 Hematology I or equivalent (BMS2008B Hematology I or equivalent)

**Precursors**

Nil

**Equivalent Courses**

Nil

**Exclusive Courses**

Nil

**Additional Information**

Note: BMS3003B does not contain any practical component, and has a credit unit value of 2.

## Part II Course Details

### Abstract

The course aims to provide an advanced knowledge of the principles of clinical chemistry by illustrating the metabolism and function of hormones. Disorders of carbohydrates metabolism, electrolyte balance, blood gas assessment, parathyroid hormone and calcium homeostasis, organ function test, therapeutic drug monitoring, drug abuse testing and the genetic basis of disease hypothalamic will also be investigated. The course will allow students to develop practical skills to carry out clinical studies in given clinical conditions.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Implement the procedures and methodologies in clinical chemistry for diagnosis and monitoring of human disease	25		x	
2	Carry out laboratory investigations by applying appropriate methodology and techniques, demonstrate ability in using equipment available in the laboratories	25	x	x	x
3	Evaluate and interpret the laboratory results in different clinical conditions, critically discuss the interpretation of the results and recommend changes based on recent practice	25	x	x	x
4	Develop an enduring set of clinical and research skills for use in their future laboratory work	25	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.

### Teaching and Learning Activities (TLAs)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures and models	Teaching and learning based on a combination of lectures and models to explain the structure of the metabolism and function of hormones	1, 2, 3, 4

**Assessment Tasks / Activities (ATs)**

ATs		CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid-term quizzes	1, 2, 3	30	The quiz could be other equivalent course work assigned by course leader

**Continuous Assessment (%)**

30

**Examination (%)**

70

**Examination Duration (Hours)**

3

**Additional Information for ATs**

Minimum Passing Requirement: A minimum of 40% in both continuous assessment and examination.

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

1. Coursework (Short quizzes)

**Criterion**

Short Quizzes: Quiz score will be used to verify the state of students' learning progress

**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

**Assessment Task**

2. End-of-term 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

## Part III Other Information

**Keyword Syllabus**

- Laboratory Principles
- Analytical Techniques and Instrumentation
- Quality control and quality assurance
- Enzymology
- Electrolytes
- Blood gas analysis
- Liquid profile
- Molecular Diagnostics and Genetics
- Organ function test
- Therapeutic drug screening
- Pathophysiology

**Reading List****Compulsory Readings**

Title	
1	Clinical Chemistry: Principles, Techniques, and Correlations By Michael L. Bishop, Edward P. Fody, Larry E. Schoeff MS,

**Additional Readings**

Title	
1	Tietz Textbook of Clinical Chemistry and Molecular Diagnostics by Carl A. Burtis , Edward R. Ashwood , David E. Bruns
2	Clinical Chemistry, Immunology and Laboratory Quality Control by Amitava Dasgupta, and Amer Wahed, 2014, ISBN: 978-0-12-407821-5
3	Marks' Basic Medical Biochemistry by Michael A. Lieberman, Allan D. Marks, 2012, ISBN-13: 978-160831572
4	Journal of the American Association of Clinical Chemistry <a href="https://www.aacc.org/">https://www.aacc.org/</a>