

BMS4007: PHARMACOLOGY AND TOXICOLOGY

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Pharmacology and Toxicology

Subject Code

BMS - Biomedical Sciences

Course Number

4007

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

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

The course aims to introduce the basic principles of pharmacology & toxicology, the nature and mechanism of drug action in various diseases, and the understanding of different branch of toxicology. Topics are divided by three parts;

Introduction to the pharmacology & toxicology, General pharmacology & toxicology, and Experimental pharmacology & toxicology. Introduction to the pharmacology & toxicology will provide students with the overview of pharmacology and toxicology, including pharmacokinetic and pharmacodynamics as well as toxicology tests and drug development. General pharmacology & toxicology are designed for introducing the basic understanding of each branch of pharmacology & toxicology, such as cardiovascular pharmacology and genetic toxicology. Experimental pharmacology & toxicology will introduce the principle of modern experimental technology, such as virtual pharmacology lab. Lectures and tutorials will provide students with the great knowledge and insight into the understanding and solving of the problems associated with drugs and toxins in their future careers.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Recognize the history associated with drugs and toxins, and understand the basic concept of toxin, drug, and drug development.		x	x	
2	Learn the basic definition and principle of pharmacology and toxicology.			x	
3	Learn the application, action mechanism, and side effect of therapeutically used drugs in various diseases.			x	
4	Demonstrate the principle and procedure of techniques utilized in standard laboratory or virtual laboratory experiments to investigate the effects of drugs and toxins on the biological system.			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 and tutorials	Lectures deliver subject-specific knowledge	1, 2, 3	
2	Tutorials	Virtual Pharmacology & Toxicology Lab	1, 2, 3, 4	

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Assignment report I	1, 2	15	-	No

2	Assignment report II	3, 4	15	-	No
3	Mid-term Quiz	1, 2, 3, 4	20	-	No

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

3

Minimum Continuous Assessment Passing Requirement (%)

40

Minimum Examination Passing Requirement (%)

40

Additional Information for ATs

Minimum Passing Requirement: A minimum of 40% in continuous assessment as well as in examination.

Assessment Rubrics (AR)**Assessment Task**

Assignment report I

Criterion

To test the ability of students to apply knowledge they learned in classes to build their own knowledge by self-directed learning through various available resources.

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

Assignment report II

Criterion

To test the participation and application of virtual pharmacology & toxicology labs for their understanding the action mechanism of various drugs and toxins.

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

Mid-term quiz

Criterion

To test the basic knowledge of pharmacology and toxicology.

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

Final Examination

Criterion

To evaluate students' understanding, critical thinking, and application of knowledge gained from lectures & tutorials.

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**

- Drug
- Toxin
- Pharmacology
- Pharmacokinetics and pharmacodynamics
- Toxicology
- Drug development

Reading List**Compulsory Readings**

Title	
1	Toxicology: (1). Casarett & Doull's Essentials of Toxicology, Third Edition (Lange) 3rd Edition Curtis Klaassen (Author), John B. Watkins III (Author) ISBN-13: 978-0071847087 (2). Casarett & Doull's Toxicology: The Basic Science of Poisons Eighth Edition Curtis Klaassen ISBN-13: 978-0071769235 ISBN-10: 0071769234
2	Pharmacology: (1). Core Concepts in Pharmacology, 4th Edition Norm Holland, Ph.D, Hillsborough Community College Michael Patrick Adams Jeanine Brice, RN, MSN, Pasco-Hernando Community College Core Concepts in Pharmacology, 4th Edition ISBN-13: 9780133449815 (2). Goodman & Gilman's The Pharmacological Basis of Therapeutics Laurence Brunton (Author), Bruce Chabner (Author), Bjorn Knollman (Author) ISBN-13: 978-0071624428 ISBN-10: 0071624422

Additional Readings

Title	
1	Nil