

Ministry of Higher Education and Scientific Research

Republic of Iraq



University: University of Basrah

College: **Science**

Department: **Pathological Analyses**



Year: 2022-2023

Semester: First

SYLLABUS: <TOXICOLOGY>

INSTRUCTOR: DR. RAJAA NOURI ALYASSEIN

Phone:009647732004373

Hours: 2

Office: Iraqi Ministry of Higher Education and Scientific Research

Email: rajaa.alyassein@uobasrah.edu.iq

COURSE OVERVIEW

The goal of this course is to introduce the science of toxicology, due to modern society uses chemicals more and more frequently, and as a result, toxicology is becoming a subject of greater importance. The objective of this course is to introduce students to the general principles of toxicology, the various classes of toxic agents, and the organ and biochemical systems that these agents affect. The course will also focus on the prevention and management of toxicity from several agents. During the course, students will review several events of human and companion animal toxicity that are reported in the medical literature and/or in the media, with the aim to translate theoretical concepts into a real-world context. This is a great course for those contemplating graduate study in the fields of toxicology or pharmacology, or for those who work with toxicologists or pharmacologists in a regulatory or research setting, or for the layperson interested in learning more about toxicology.

GOALS AND OBJECTIVES

- Students will explore the differences between man-made and natural toxic substances.
- Students will learn the basics of the dose-response principle and obtain information they can use in the future to make wise decisions for themselves and their families.
- Students will learn that toxic substances in our environment can affect all organisms.
- Students will understand that we are surrounded by both natural and manmade toxic

substances and be able to differentiate between the two.

- Students will be able to define a “toxic substance.”
- Students will be able to define the “science of toxicology.”
- Students will analyze toxicological risks versus benefits with the understanding of basic toxicological principles.
- Students will be able to calculate chemical concentrations in water.
- Students will understand the dose-response principle.

EXTBOOK AND READINGS

- *Gallo, M. A., & Doull, J. (1996). History and scope of toxicology.*
- *Borzelleca, J. F. (2000). Paracelsus: herald of modern toxicology. Toxicological Sciences, 53(1), 2-4.*
- *Robertson, D. G. (2005). Metabonomics in toxicology: a review. Toxicological Sciences, 85(2), 809-822.*
- *Gupta, P. K. (2014). Essential concepts in toxicology. Journal of Drug Delivery and Therapeutics, 4(2), 00-00.*
- *Timbrell, J., & Barile, F. A. (2023). Introduction to toxicology. CRC Press.*

COURSE ASSESSMENTS

The course grade (**2** points) will be based on the following elements:

	Points
Exams	85
Participation	10
Attendance	5
Assignments	100

COURSE DESCRIPTION AND ASSIGNMENT SCHEDULE

This **NO.** -credit hour course is 14 weeks long. You should invest **NO.** hours every week in this course.

WK	DATE	TOPIC	READING	ASSIGNMENT
1		Introduction to Toxicology, historical basic of toxicity		
2		What are harmful or adverse effects of toxicants?		
3		Interaction of chemical toxicity types.		
4		Toxicity Laws, Level of Toxicology effect, chemical basic of toxicology		
5				Assignment 1
6		Mechanisms of toxic Chemicals uptake, Factors Affecting Dose and Response.		
7		Calculations of Lt50 LC50, LD50, EC50 and ED5.		
8		Factors relating to the exposure and organisms and Pathways of Exposure		
9		Toxicity of chlorine: How people can be exposed to chlorine, Symptoms of chlorine poisoning		
10				Assignment 2
11		Toxicity of heavy metals on human health and Immune Response.		
12		Toxicity of different types pesticides and their effects on human health.		
13		Toxicity of Flame retardants poisoning, and Human pathways exposure.		
14		Toxicity of pharmaceuticals and personal care products.		
15		Review sessions for all lectures.		

Is it possible to develop the curriculum <within the teaching authority 20%> to include vocabulary that serves sustainability	
1- Yes, it is possible (point an appropriate aspect)	Environmental toxicologists study how chemicals affect human health and the environment, applying principles of biology, chemistry and epidemiology. Toxicologists predict where chemicals will end up in the environment and in our bodies, analyze the toxic impact of chemicals and monitor exposure limits to keep us and our environment healthy.
2- Suggest aspect that serves sustainability	