Course Specification
(Bachelor)

Course Title:	Laboratory Safety
Course Code:	BIOL 481
Program:	Bachelor of Science (B.Sc)
Department:	Biology
College:	College of Science
Institution:	Majmaah University
Version:	1 Version
Last Revision Date:	4/9/ 2025

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (2)					
2. Course type					
A.	☐University	☐ College	☒Department	☐Track	☐Others
B.	☐Required		☒ Elective		
3. Level/year at which this course is offered: 8th level					
4. Course general Description:					
The Laboratory Safety course provides a basic understanding of the nature of laboratories and the basics of safety in them. The course emphasizes the approach of understanding and recognizing the potential risks in the various laboratories of biology, chemistry, medical and physical laboratories as well. The course also reviews methods and ways of dealing with biological and chemical materials, devices and physical tools. It also provides a basic understanding of these materials and devices to achieve the safety in various laboratories. The course reviews ways of prevention and safety according to the recognized local and international regulations, and focuses on proper behavior during the use of these different laboratories.					
5. Pre-requirements for this course (if any)**:**					
There are no requirements.					
6. Pre-requirements for this course (if any)**:**					
N/A					

7. Course Main Objective(s):
• Know the basic concepts of safety for oneself, the people around you, the establishment, and the surrounding environment. • • The ability to know and estimate the potential risks of using different materials and devices in different laboratories. • • The ability to assess the degree of danger and the speed in taking appropriate measures in accordance with local and international rules and regulations to solve problems in order to achieve safety.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	35	78
2	E-learning		
3	Hybrid • Traditional classroom • E-learning	10	22
4	Distance learning	45	100%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	15
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Understanding the principles of laboratory safety.	**K1 (KPI 1)**	Lectures, individual and group discussion, and project works, videos	MCQs, short essay.
1.2	The basic components of laboratories and laboratories.	**K1 (KPI 2)**	-do-	-do-

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.3	Characteristics and basic regulations to achieve safety in the laboratories.	**K1** **(KPI 3)**	-do-	-do-
2.0	**Skills**			
2.1	Development and implementation of identification a research problem.	**S1_KPI 10**	Lectures, individual and group discussion, and project works.	MCQs, short essay & Presentation
2.2	Understand importance of Learn the general steps in the research process from research idea to project implementation.	**S1_KPI 11**	-do-	-do-
3.0	**Values, autonomy, and responsibility**			
3.1	Communicate and work effectively in groups as well as individually for biological experiments	**V1_KPI 20**	Home work Assignment	Oral question Report

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.2	Presentation skills of collected information	**V1_KPI 21**	Presentation	Oral presentation
	...			

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to the concept of different laboratories types	**3**
2	An introduction to general practices to be taken in laboratories in general	**3**
3.	The risks of various laboratories, including biological and chemical materials, and various electrical appliances and tools	**6**
4.	Personal safety equipment (masks, coats...) and methods of their correct use	**6**
5.	The optimal use of devices and methods of checking their safety before use	**3**
6.	Methods of safe and proper disposal of various biological and chemical wastes	**6**
7.	Introduction to international and local regulations and legislation to achieve safety and security in laboratories	**6**

8.	Methods of safe use of various laboratories, including biological, chemical and medical	**6**
9.	Handling of experimental animals	**3**
10.	General instructions on the safety of laboratories.	**3**
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Mid-term exam	6th week	**15%**
2.	E-exam (online)	8th week	**10%**
3.	Mid-term exam	11th week	**15%**
4.	Quiz, Oral test and Home works	Every two weeks	**10%**
4.	Assignment, Presentation or group project	13th week	**10%**
5.	Final exam	16th week	**40%**

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Laboratory Safety Theory and Practice, Anthony Fuscaldo (2012). ISBN :0-12-269980-7
Supportive References	The AGT Cytogenetics Laboratory Manual, Barch, M. J., Knutsen, T. and Spurbeck, J., (2017). ISBN:978111906122
Electronic Materials	https://www.redcross.org/take-a-class/first-aid
Other Learning Materials	Electronic materials of Lecture notes and PowerPoints available in 'Black board' database

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms are available
Technology equipment (projector, smart board, software)	Smart board and e podium are available
Other equipment (depending on the nature of the specialty)	Nil

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students assessment	Program Leaders	Indirect

Assessment Areas/Issues	Assessor	Assessment Methods
Quality of learning resources	Faculty	Direct
The extent to which CLOs have been achieved	Program Leader	Direct
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

Council /COMMittee	Department council
Reference No.	**2**
Date	**4.9.2025**