

Faculty: Allied Medical Sciences	
Department: Medical Laboratory Sciences (MLS)	Program: MSc
Academic year: 2022/2023	Semester: Second



Course Plan

First: Course Information

Course No.	Course Title: Research methodology	Credit Hours:2
Prerequisite:	Section No.:	Lecture Time: Section 1: Tuesday 4:30 pm – 6:30 pm Section 2: Saturday 12:00 pm –2:00 pm Section 3: Wednesday 4:30 pm – 6:30 pm
Type Of Course:	<input type="checkbox"/> Obligatory Faculty Requirement <input type="checkbox"/> Elective University Requirement <input type="checkbox"/> Obligatory University Requirement <input type="checkbox"/> Faculty Requirement <input checked="" type="checkbox"/> Course Elective Specialty Requirement <input type="checkbox"/> Obligatory Specialization requirement	
Type of Learning:	<input type="checkbox"/> Face-to-Face Learning <input checked="" type="checkbox"/> Blended Learning(2 Face-to-Face + 1 Asynchronous) <input type="checkbox"/> Online Learning (2 Synchronous+1 Asynchronous)	

Second: Instructor's Information

Name: Dr: Rania Groom Dr: Tareq Nayef AlRamadneh		Academic Rank: Associate Professor Assistant professor	
Office Number: D356		Ext. Number:1530	E-mail:talramadneh@zu.edu.jo
Office Hours:	Sunday	Monday	Tuesday Wednesday Thursday
	■	■	

Third: Course Description

This course will provide an opportunity for students to establish or advance their understanding of research through critical exploration of research language, ethics, and laboratory experience.

--

Fourth: Learning Source

Main Reference:	<i>Advanced Methods in Molecular Biology and Biotechnology: A Practical Lab Manual 1st Edition by Khalid Z. Masoodi, Sameena Maqbool Lone, Rovidha Saba Rasool, 2020, 1st edition, Academic Press; 1st edition (November 13, 2020).</i>	
Author: Khalid Z. Masoodi	Issue No.:	Publication Year:2020
Additional Sources & Websites:	<ul style="list-style-type: none"> • <i>Responsible Conduct of Research 4th Edition by Adil E. Shamoo, David B. Resnik, Oxford University Press; 4th edition (May 13, 2022)</i> 	
Teaching Type:	<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Laboratory <input type="checkbox"/> Workshop <input type="checkbox"/> MS Teams <input checked="" type="checkbox"/> Moodle	

Fifth: Learning Outcomes

Course Code	Course Intended Learning Outcomes (CILOs)	Connection To Program ILOs Code
Knowledge		
**K1	Develop a set of quantitative and qualitative research designs used in scientific research and identify the advantages and disadvantages associated with these designs. Along with designing an appropriate research study to answer a research question related to a field of life sciences.	P1,5,6
K2	Knowing the ethical challenges in Biological med research according to the basics of Responsible Conduct of Research	P1,5,6
K3	Conducting a set of scientific experiments and presenting findings through writing a research paper (manuscript).	P1,2,3
K4	Write an appropriate research proposal, IRB application, and ICUAC application to be submitted for financial support and ethical approvals	P1,2
K5	Scientific Calculations and Reagents preparation	P1,5,6
Skills		

***S1	Identify and assess the effectiveness of individual tests, strategies and protocols in the investigation and screening of diseases and pathological conditions	P1,2,5,6
S2	Interpret complex and advanced test results related to Reagents preparation	P1,2
S3	Practice professional skills and scientific knowledge in quality management and quality assurance of clinical research	P3,5,6
S4	Apply essential set of skills needed to author technical reports, scientific IRB application, and ICUAC application	P4,5,6
S5	Identify and assess the effectiveness of individual tests, strategies and protocols in the investigation and screening of diseases and pathological conditions	P1,2,5,6
Competencies		
****C1	Ability to apply proper procedures and standards related to pre-analytical, analytical, and post analytical aspects of sample collection and analysis	P2,3
C2	Confidence in correlating laboratory findings with physiological and biochemical changes associated with research methodology conditions discussed in class.	P1,2,6
C3	Proficient in presenting and defending published research articles and/or data of case studies in front of students and faculty	P3,5,6
C4	Conducting literature search, reviewing, and criticizing published scientific articles	P4,5,6
C5	Demonstrate an awareness of the need for continuing education in terms of professional growth and development	P5,6

* P: Program, **K: knowledge, ***S: skills, ****C: competencies.

Sixth: Course Structure

Lecture Date	Intended Teaching Outcomes(ILOs)	Topics	Teaching Procedures*	TeachingMethods***	References***
Week 1 26/2-2/3	Ice break, and Course outline discussion		Face-to-face	Discussion	
Week 2 5/3-9/3	Fundamentals, Lab safety, and work environment protocols	K1,3 C1 S3	Face-to-face Asynchronous	Lectures (PPT) Group discussion Assignments	
Week 3 12/3-16/3	Scientific Calculations and Reagents preparation	K1,3 C1 S3	Face-to-face Asynchronous	Lectures (PPT) Group discussion Assignments	
Week 4 26/3-30/3	Research Involving Human Subjects	K1,2,4 C1	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Assignment Quiz 1	
Week 5 26/3-30/3	Research Misconduct	K4 S2 C2	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Assignment	
Week 6 2/4-6/4	: Authorship	K4 S2 C2	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Literature Assignment	
Week 7 9/4-13/4	Plagiarism		Face-to-face	Discussion	
Week 8 16/4-20/4	RCR: using animal subjects in research	K1,3 C1 S3	Face-to-face Asynchronous	Lectures (PPT) Group discussion Assignments	
Week 9 23/4-27/4	Intellectual property IP and patenting in the field of Biotechnology	K1,3 C1 S3	Face-to-face Asynchronous	Lectures (PPT) Group discussion Assignments	
Week 10 30/4-4/5	Microbiological Laboratory Techniques	K4 S2 C2	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Literature Assignment	
Week 11 7/5-11/5	Literature search and review	K4 S2 C2	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Quiz 2	
Week 12 14-18/5	Reading Scientific Papers	K4 S2	Face-to-face	Lectures (PPT) Case study discussion	

		C2	Asynchronous	Assignment	
Week 13 21-25/5	Scientific writing and presentation	K4 S2 C2	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Assignment	
Week 14 28/5-1/6	Article presentation session 1	K4 S2 C2	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Assignment Quiz 3	
Week 15 4-8/6	Article presentation session 2	K4 S2 C2	Face-to-face Asynchronous	Lectures (PPT) Case study discussion Assignment	
Week 16	Final Exam Week				


* Learning procedures: (Face-to-Face, synchronous, asynchronous). ** Teaching methods: (Lecture, video....). *** Reference: (Pages of the book, recorded lecture, video....).

Seventh: Assessment methods

Methods	Online Learning	Blended Learning	Face-To-Face Learning	Measurable Course (ILOs)
First Exam	0	0	0	
Second Exam	0	0	0	
Mid-term Exam	0	30	0	K1-5; S1-3; C1-2
Quizzes/homework/participation	0	30	0	All
Oral Presentations	0	0	0	S4, C3,4,5
Final Exam	0	40	0	All

Eighth: Course Policies

- All course policies are applied on all teaching patterns (online, blended, and face-to-face Learning) as follows:
 - a. Punctuality.
 - b. Participation and interaction.
 - c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).

Approved by:	Name	Date	Signature
Head of Department	Dr, Kawthar Amawi	6/3/2023	
Faculty Dean	Dr, Hashem abu- Harirah	6/3/2023	