	Faculty: Pharmacy
Department: Pharmaceutical Chemistry	**Program: Master**
Semester: first	**Academic year: 2023/2024**

Course Plan

First: Course Information

Course Name:	**Research Methodology**				***Course No.*** **1101703**		
Credit Hours:	***1***	***Theoretical***	***1***	***Practical***		***Virtual Hours***	***40***
Prerequisite:	***team Line-Microsoft Number: Class***			***W 4:00-3:00 Lecture Time:***			
Level in JNQF	***9***						
Course Nature:	■ *Mandatory Faculty Requirement* ☐ *Optional University Requirement* ☐ *Mandatory University Requirement* ☐ *Faculty Requirement* ☐ *Ancillary Course* ☐ *Optional Specialty Requirement* ☐ *Mandatory Specialization requirement*						
Type of Education:	☐ **Face-to-Face Education** ☐ **Blended Education (2 Face-to-Face + 1 Asynchronous)** ■ **Electronic Education Fully (1 Asynchronous + 2 Synchronous)**						

Second: Instructor's Information

Course coordinator		
Name:Mahmoud A.Al-Sha'er	***Office Number:273D***	***Email: a.mahmoud@zu.edu.jo***
Instructor		
Name: Mahmoud A.Al-Sha'er	***Office Number:273D***	***Email: a.mahmoud@zu.edu.jo***
Office Hours:11-12am	***Sunday…. Monday…. Tuesday…. Wednesday……. Thursday***	

Third: Short Description of the Course

This course provides new graduate students with a foundation to begin research in the Department of Pharmaceutical Sciences. Topics relevant to graduate studies and research will be covered, including an overview of the rules and regulations of graduate studies, course curriculum for a Master's Degree in pharmaceutical sciences, literature search, key software in the area of research, research ethics, advising and monitoring, scientific authorship, data management, data presentation, research misconduct, scientific writing, research proposals, manuscript preparation, thesis writing, human participants and animal subjects in research, and laboratory safety. To introduce graduate students to the various research projects in the Department, the students should interview four faculty members and write a summary of their research interests

Fourth: Course objectives

Upon completing this course, students will be able to:

1. **Understand** the rules and regulations of graduate studies.
2. **Comprehend** research ethics and proper research conduct.
3. **Understand** the rules governing copyright and authorship.
4. **Infer** the consequences of research misconduct.
5. **Utilize** scientific research engines effectively.
6. **Use** key scientific software in the field of chemistry.
7. **Write** a research proposal, thesis, and manuscripts.
8. **Understand** the research advisor selection process.
9. **Apprehend** the rules governing the advisor-student relationship.
10. **Take** midterm and final exams as open-book assessments

Fifth: Learning Outcomes

Level descriptor according to (JNQF)	*CILOs Code*	*CILOs* If any CILO will not be assessed in the course, mark NA.	*Associated PILOs Code* *Choose one PILO for each CILO**	*Assessment method*** *Choose at least two methods*	*Scores out of 100* State the total score identified for each CILO	*Minimum acceptable Score/percentage (%)* *The percentage should not be less than 50% ****
Knowledge	**K1**	**Recognize** the available database and their uses.	PK	Homework	15	12 (80%)
	K2	**Distinguish** research capabilities, complications, goals of research, and writing up the results and thesis.	PK	Quizes MidExam	10	7 (70%)
Skills	**S3**	**Identify** the criteria of scientific research and scientific writing.	PS2	Project	10	7 (70%)
	S4	**Communicate** effectively with other scientists and colleagues.	PS2	Seminars	10	3.5 (70%)
	S5	**Design** a rational research methodology.	PS3	Report preparation	5	3.5 (70%)
	S5	**Summarize** the skills of research, authenticity, copyright, and patency	PS3	Review preparation	5	3.5 (70%)
Competencies	**C1**	**Evaluate** the scientific research issues and critical points to dissolve.	PC1	Seminars Final Exam	10	7 (70%)
	C1	**Discriminate** between major and minor ailments and when it is necessary to use in the research subject.	PC1	Seminars	5	3.5 (70%)
	C3	**Create** project-related problems and recommend the appropriate method.	PC4	Homework Exams	10	7 (70%)
	C4	**Collect** information related to the project or subject of research.	PC3	Project Preparation	10	7 (70%)

	C4	**Reconstruct** information from medical guidelines & journal databases.	PC3	Review and Report preparation	10	7 (70%)

*Refer to document (CC-2023-02) and page 2 in document (CC-2023-01)
** Refer to document (CC-2023-05)
****80% of the students** must achieve the minimum acceptable percentage or higher for each CILO

Sixth: Learning Source

Designated Book:	• **On Being a Scientist, A Guide to Responsible Conduct in Research: Third Edition (2009)**	
Author:	***Print: Third Edition***	***Year:2009***
Additional Sources: Website:	• **https://www.nap.edu/catalog/12192/on-being-a-scientist-a-guide-to-responsible-conduct-in** • ORI Introduction to the Responsible Conduct of Research, Nicholas H. Steneck, Ph.D. Illustrations by David Zinn, https://ori.hhs.gov/ori-introduction-responsible-conduct-research **www.sciencedirect.com**	
Teaching Type:	***Classroom*** ☐ ***Laboratory*** ☐ ***Workshop*** ▬ **MS Teams** ▬ **Moodle** ▬	

Seventh: Course Structure

Lecture Date	Topics	Teaching Procedures*	Teaching Methods**	Covered CILOs	References***
W1	Introduction to Graduate Studies	Powerpoint presentations Discussion & case study	Microsoft team	PK	Zarqa University rules
W2	Library Tour and Searching the Literature -Writing up proposal -Literature Survey	Powerpoint presentations Discussion & case study	Microsoft team	PK, PS1	Videos Records Textbook
W3	ChemDraw/Drawing Tool and EndNote/Citation Manager -writing a scientific report	Powerpoint presentations Discussion & case study	Microsoft team	PS2,PS3	Videos Records Textbook
W4	Responsible Conduct of Research: Research Ethics Use marvin tool	Powerpoint presentations Discussion & case study	Microsoft team	PK, PS2	Videos Records Textbook

W5	Advising and Mentoring -Literature Survey	Powerpoint presentations Discussion & case study	Microsoft team	PS2,PS3	Videos Records Textbook
W6	Data Management How to use science direct	Powerpoint presentations Discussion & case study	Microsoft team	PC1	Videos Records Textbook
W7	Authorship and Publication (Sharing of Research Results) How to use PubChem	Powerpoint presentations Discussion & case study	Microsoft team	PC1, PS2	Videos Records Textbook
W8	Data Presentation How to use Pubmed	Powerpoint presentations Discussion & case study	Microsoft team	PS3	Videos Records Textbook
W9	Research Misconduct How to use scientific websites; Quillbot to check plagiarism	Powerpoint presentations Discussion & case study	Microsoft team	PC4	Videos Records Textbook
W10	Scientific Writing Preparation of the review	Powerpoint presentations Discussion & case study	Microsoft team	PC1	Videos Records Textbook
W11	Human Participants and Animal Subjects in Research	Powerpoint presentations Discussion & case study	Microsoft team	PS2, PC3	Videos Records Textbook
W12	Laboratory Safety in Research	Powerpoint presentations Discussion & case study	Microsoft team	PK	Videos Records Textbook

W13	Scientific Site preparation	Powerpoint presentations Discussion & case study	Microsoft team	PC3	Microsoft team
W14	Seminars	Powerpoint presentations Discussion & case study	Microsoft team	PC4	Microsoft Team
W15		Final exam			

Education procedures: (Direct, synchronous, asynchronous). * * Refer to document (CC-2023-04) ***Reference: Pages of the book, number of the chapter, recorded lecture, video….)

Eighth: Assessment methods

Methods	Fully Electronic Education	Integrated Teaching	Direct Teaching	Specific Course Output to be measured *State the score identified for each CILO for each method of assessment out of 100 **If any CILO will not be assessed in the course, mark NA.										
				K1	K2	S1	S2	S3	S4	S5	C1	C2	C3	C4
Mid-term Exam	30			5	5			5	5		5			5
Home Work	10										5		5	
Seminar	10			5										5
Project	10								5					5
Final Exam	40			5	5			5		10	5		5	5
Total out of 100	100			15	10			10	10	10	15		10	20

* Refer to document (CC-2023-03)

Ninth: Course Policies

- Meeting the deadline for the lecture.
- Commitment to interaction and participation.
- Interactive lectures will be given through a platform (MS Teams).
- Duties and tests will be given through a platform (Moodle).
- Commitment to the right appearance with the proper background in front of the camera.
- University regulations for attendance and absence from lectures and examinations are in force.
- Academic Integrity: According to university regulations and instructions, fraud or moral impersonation is unacceptable and punishable.

Approval	Name	Date	Signature
Head of Department	Hana	10-10-2023	
Faculty Dean	Ahlam	10-10-2023	