



**Jordan University of Science and Technology**  
**Faculty of Science & Arts**  
**Applied Biological Sciences Department**

BIO797 Research Methods - JNQF Level: 9

First Semester 2024-2025

**Course Catalog**

3 Credit Hours. this course outline the theory and philosophy of science, scientific approach, elements of scientific papers, writing research proposals, laboratory safety, laboratory animals and animal handling, types of injections, techniques in blood withdrawal, toxicity and scientific extermination on new drugs and animal response. Students are also required to present advanced seminars in various topics in biological sciences. Course Objectives 1- Develop working knowledge of how knowledge is collected, presented and, disseminated 2- Learn the ethical, political, and pragmatic issues involved in the research process 3- Discover where and how to find and evaluate biological science research 4-Gain a practical understanding of the various methodological tools used for biological scientific research 5- Learn to collect, analyze and interpret research data

**Teaching Method:** Blended

**Text Book**

<b>Title</b>	Practical Skill in Biology
<b>Author(s)</b>	Jones, A., Reed, R. & Weyers, J
<b>Edition</b>	2nd Edition
<b>Short Name</b>	ref#1
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
ref#2	Investigating Biology	Morgan, J. G. and Carter, M. E. B.	2nd Edition	

**Instructor**

Name	Prof. Zuhair Amr
Office Location	PH1L1

Office Hours	Sun : 12:00 - 14:00 Mon : 11:30 - 13:30 Wed : 11:30 - 13:30 Thu : 13:00 - 14:00
Email	amrz@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Wed : 14:30 - 16:30 Room: SF08

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Nature and philosophy of science	From <b>ref#1</b>
Week 2	Writing proposals, thesis and scientific papers	From <b>ref#2</b>
Week 3	Scientific Resources	From <b>ref#1</b>
Week 4	Laboratory skill and safety	From <b>ref#1</b>
Week 5	Solution preparation	From <b>ref#2</b>
Week 6	Blood withdrawal and injection: types	From <b>ref#1</b>
Week 7	Karyotype techniques	From <b>ref#2</b>
Week 8	Animal room practice: handling, injections and blood withdrawal	From <b>ref#1</b>
Week 9	Lethal dose determination	From <b>ref#2</b>
Week 10	Karyotype techniques	From <b>ref#1</b>
Week 11	Photography skills	From <b>ref#2</b>
Week 12	Laboratory rotation	From <b>ref#2</b>
Week 13	Laboratory rotation	From <b>ref#2</b>
Week 14	Obtaining and identification of specimens	From <b>ref#1</b>
Week 15	Presentations	
Week 16	Presentations	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand the power and limitations of various research methods Construct and write an effective research proposal and reports [1A, 1D] [1L9K1, 1L9C1]	20%	

Demonstrate the use of modern biological research methods [1A, 1D] [1L9K2, 1L9S1, 1L9S2]	20%	
Evaluate and independently design data collection and carry out data analysis [1A, 1D] [1L9S1, 1L9C1]	20%	
Design and plan an independent research project using quantitative or qualitative methods Utilize skills relating to the process of conducting science and apply the scientific method [1A, 1F] [1L9K3, 1L9C1, 1L9C4]	40%	

Relationship to Program Student Outcomes (Out of 100%)					
A	B	C	D	E	F
50			30		20

Relationship to NQF Outcomes (Out of 100%)						
L9K1	L9K2	L9K3	L9S1	L9S2	L9C1	L9C4
10	6.67	13.33	16.67	6.67	33.33	13.33

Evaluation	
Assessment Tool	Weight
First Exam	25%
Final Exam	50%
Second Exam	25%

Policy	
Course policies	<ol style="list-style-type: none"> <li>1. Your class attendance is mandatory. Absences in excess of 20% of the total lecture hours will result in your being dropped from the course with a failing grade.</li> <li>2. Make-up exam appeals should be filed within Two days of the missed exam.</li> <li>3. Cell phones are prohibited during examinations and must be turned off during lecture. No incoming or outgoing calls or text messages are allowed.</li> <li>4. Unethical conduct, including.</li> </ol>

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