

Module (Course Syllabus) Catalogue 2023-2024

College/ Institute	Shaqlawa Technical College	
Department	Medical Laboratory Technology-	
Module Name	Research Methodology	
Module Code		
Degree	Technical Diploma <input type="checkbox"/>	Bachelor <input checked="" type="checkbox"/>
	High Diploma <input type="checkbox"/>	Master <input type="checkbox"/> PhD <input type="checkbox"/>
Semester	Seventh	
Qualification	Bachelor	
Scientific Title	Lecturer	
ECTS (Credits)	6	
Module type	Prerequisite <input type="checkbox"/>	Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours	4	
Weekly hours (Theory)	(2)hr Class	(70)Total hrs Workload
Number of Weeks	14	
Lecturer (Theory)	Dr. Nzar Ali Ameen Shwan	
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Lecturer (Practical)		
E-Mail & Mobile NO.		
Websites		

Course Book

<p>Course Description</p>	<p>This comprehensive course in Research Methodology and Design equips students with the essential skills and knowledge necessary for conducting rigorous and effective research across various disciplines. The course is designed to provide a solid foundation for both novice and intermediate researchers, fostering a deep understanding of the principles and practices that underpin the research process.</p>
<p>Course objectives</p>	<p>Upon successful completion of this course, students should be able to demonstrate the following competencies:</p> <ol style="list-style-type: none"> 1. Foundations of Research: <ul style="list-style-type: none"> ○ Define fundamental research concepts. ○ Recognize the importance of research in various contexts. 2. Research Design Mastery: <ul style="list-style-type: none"> ○ Differentiate and select appropriate research designs. ○ Evaluate strengths and limitations of different designs. 3. Literature Review Skills: <ul style="list-style-type: none"> ○ Critically review and synthesize literature. ○ Identify and articulate research gaps. 4. Formulating Clear Questions and Hypotheses: <ul style="list-style-type: none"> ○ Craft precise and researchable questions. ○ Understand their role in guiding research. 5. Diverse Data Collection Techniques: <ul style="list-style-type: none"> ○ Gain proficiency in surveys, interviews, observations, and experiments. ○ Address ethical considerations in data collection. 6. Sampling Proficiency: <ul style="list-style-type: none"> ○ Understand and apply sampling methods. ○ Consider implications for generalizability. 7. Statistical Tools for Data Analysis: <ul style="list-style-type: none"> ○ Develop practical skills in data analysis tools. ○ Effectively interpret and communicate results. 8. Research Ethics: <ul style="list-style-type: none"> ○ Adhere to ethical principles in research. ○ Address ethical challenges during the research process. 9. Effective Research Communication: <ul style="list-style-type: none"> ○ Develop written and oral communication skills. ○ Utilize visual aids and technology for impactful presentations. 10. Applied Knowledge in Research Project: <ul style="list-style-type: none"> ○ Design and conduct a small-scale research project. ○ Demonstrate critical analysis and reflection on the research process.

Student's obligation	<p>- Student's obligation Attendance in lecture is expected. You are responsible for everything covered, mentioned, discussed and displayed in class. If you miss a class, get a classmate's notes as my notes will not be available. You cannot excel in this course if you do not come to class.</p> <p>1- Attendance: students are strongly encouraged to attend class on a regular basis, as participation is important to understanding of the material. This is student opportunity to ask questions. Students are responsible for obtaining any information during the class which provided.</p> <p>2- Lateness: Lateness to class is disruptive</p> <p>3- Electronic devices: All cell phones are to be turned off at the beginning of class and put away during the entire class.</p> <p>4- Talking: During class please refrain from side conversations. These can be disruptive to your fellow students and your professor</p>				
Required Learning Materials	<p>- Printouts of weekly lectures taught at the college campus - Reviewing of internet</p>				
Forms of teaching	<p>The material will be presented at a level suitable for undergraduates by lecturing, discussion, video, power points and seminar</p>				
Evaluation	Task		Weight (Marks)	Due Week	Relevant Learning Outcome
	Paper Review				
	Assignments	Homework	5%		Encourages students to search for more detailed knowledge relevant to the topics taught at campus.
		Class Activity	2%		
		Seminar	10%		Enhances the preparation and presenting skills of the students
		report	10%		To make students engage more with their favorite topics
		Project			
	Quiz		8%		To encourage students, study every week.
	Midterm Exam		25%		To evaluate students and their achievements at the middle of the term.
	Final Exam		40%		Final evaluation and assessment.
	Total		100%		

Specific learning outcome:	<p>On successful completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> Define fundamental research concepts. Recognize the importance of research in various contexts. Differentiate and select appropriate research designs. Evaluate strengths and limitations of different designs. Identify and articulate research gaps. Formulating Clear Questions and Hypotheses: Understand and apply sampling methods. Develop practical skills in data analysis tools. Effectively interpret and communicate results. Effective Research Communication: Design and conduct a small-scale research project. Demonstrate critical analysis and reflection on the research process. 	
Course References:	<p>Books:</p> <ol style="list-style-type: none"> Thomas, C. G. (2021). Research Methodology and Scientific Writing (2nd ed.). [Springer]. Laake, P., Benestad, H. B., & Olsen, B. R. (2015). Research in Medical and Biological Sciences: From Planning and Preparation to Grant Application and Publication (1st ed.). ISBN: 9780127999432 (Paperback), 9780128001547 (eBook). 	
Course topics (Theory)	Week	Learning Outcome
Introduction to Research	First	Explore the fundamental concepts of research, its purpose, and its significance in various academic and professional contexts.
Basic Research Protocol Checklist and Research Terminology	Second	Explore basic Research protocols and general Terminology in Research
Excremental Design	Third	Gain insight into the selection and application of appropriate research designs, including experimental, observational, and survey designs, with a focus on understanding the strengths and limitations of each.
Research Design: Data Types	Fourth	Understand different data types in research

Formulating Research Questions and Hypotheses	Fifth	Learn the art of crafting precise and researchable questions and hypotheses, essential for guiding the research process.
Data Analysis: Statistical Analysis	Sixth	Acquire proficiency in using statistical tools and software for data analysis, interpretation of results, and drawing valid conclusions.
Midterm Exam	Seventh	
Data Analysis: Statistical Analysis	Eighth	Acquire proficiency in using statistical tools and software for data analysis, interpretation of results, and drawing valid conclusions.
Scientific Communication	Ninth	Develop effective communication skills for presenting research findings through written reports, presentations, and visual representations.
Scientific Communication	Tenth	Develop effective communication skills for presenting research findings through written reports, presentations, and visual representations.
Citation and Reference Management	Eleventh	applying various citation styles accurately in their academic work and efficiently utilizing reference management software to organize and cite sources effectively.
Citation and Reference Management	Twelfth	
Literature Review	Thirteenth	Develop skills in conducting a comprehensive literature review, critically evaluating existing research, and identifying gaps that warrant further investigation.
Research Project	Fourteenth	Apply the knowledge and skills acquired throughout

		the course by designing and conducting a small-scale research project, allowing students to put theory into practice.
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Questions Example Design (theoretical and practical exam):

All of the activities provided in the workload section are considered when awarding you a grade for this course. In order to pass this course, you will need to earn a 60% or higher on the final exam. Your score on the exam will be calculated as soon as you complete it. If you do not pass the exam on your first try, you may take it again in the second trial.

- Type of the exam (composition and multiple choice)
- Exam's duration (for example one hour)
- The number of the questions: at least four questions. The marks distributed evenly throughout.

The answer should contain preface, main contents and conclusion.

Example

Q- Fill in the blank with a suitable word.

1. The scientific method relies on _____, measurement, prediction, experimentation, and verification.
2. The famous quote, 'Knowledge is power,' suggests that with knowledge, one's capability to succeed in life is likely to _____.

Q- Choose the correct answer.

1. What is the primary purpose of an experiment in scientific research?
 - a. To gather data without making any changes.
 - b. To test the validity of a hypothesis.
 - c. To confirm previously held beliefs.
 - d. To make predictions without testing them.

Q- Give short answers to the following questions.

1. What are the key components typically included in a basic research protocol checklist?
2. What are the requirements that researchers need to fulfil before conducting a research project?

Extra notes:

External Evaluator