

**The University of Jordan, School of Medicine**  
**Quantitative Research for Medical Students**  
**1st semester 2018/2019**

Course title: البحث الطبي الكمي

Course number: 0510491

Credit hours: 3 credit hours

Semester: 1st, 2018/2019

Course Instructor: Jafar Alshraideh, Ph.D.

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**Course Description:**

As stated in the approved study plan.

The purpose of this course is to introduce medical student to quantitative research methods and process. The research process will be discussed and reviewed. The course explains quantitative medical research concepts related to purposes, methods, designs, literature review, sampling, and data collection. The course also focuses on experimental and non-experimental research designs with their advantages and limitations. Practical examples of research are presented all through the course and students are required to write a research proposal to demonstrate understanding of the course concepts.

**Course aim and outcomes:**

The course aims to introduce students to quantitative research concepts, methods and process. It allows students to recognise the significance of research to their career as it provides the basis for evidence based medicine and clinical judgement.

Intended Learning Outcomes (ILOs): Upon successful completion of this course students should be able to

- Understand key concepts related to quantitative research
- Understand the purpose of conducting research
- Recognize sources for research problems
- Recognize a researchable problem
- Begin to develop a research problem
- Understand how to develop a hypothesis, research question or objective.
- Identify components of a working/researchable hypothesis
- Understand the importance of the literature review
- Identify appropriate sources for a literature review
- Identify quantitative research designs
- Differentiate between experimental and non-experimental research,
- Differentiate between quantitative and qualitative research
- Explain what is validity and reliability in quantitative research
- Institute measures to ensure quality of data and measurement.
- Differentiate between population, target population, and sample
- Identify sampling techniques and their limitations
- Identify sample selection and recruitment methods
- Identify data collection methods.
- Compare between data collection methods

- Understand ethical principles related to research.
- Appreciate the importance of following ethical guidelines when writing and conducting research involving human subjects
- Demonstrate ability to write quantitative research proposal in selected medical topic

### **Evaluation Methods**

<b>Evaluation Item</b>	<b>Marks</b>
Midterm exam	30%
Written Proposal Assignment	30%
Final exam	40%
<b>Total</b>	<b>100%</b>

### **Required book:**

- Jacobsen, Kathryn H. (2017) Introduction to Health Research Methods: a Practical Guide, 2nd edition. Publisher: Jones & Bartlett Learning.

### **Recommended References:**

- Forister, J. Glenn & Blessing, J. Dennis (2016) Introduction to Research and Medical Literature for Health Professionals, Fourth Edition. Jones & Bartlett Learning.
- Polit, D.F., & Beck, C.T. (2018). *Nursing research: Generating and assessing evidence for nursing practice* (10<sup>th</sup> ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Portney & Watkins (2013) Foundations of Clinical Research: Pearson New International Edition: Applications to Practice, 3/E. Pearson publisher.
- American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.
- <http://e-liblibrary.ju.edu.jo>

## Topics' Outline and Schedule

Hours		Topic	Chapters
1.		Course overview	1
2.	Step 1: Identifying a Study Question	Selecting a general topic	2
3.		Reviewing the literature	3
4.		Focusing the research question	4
5.		Collaborating	5
6.		Co-authoring	6
7.	Step 2: Selecting a Study Approach	Overview of study approaches	7
8.		Case series	8
9.		Cross-sectional	9
10.		case-control studies	10
11.		Cohort studies	11
12.		Experimental studies	12
13.	Step 3: Designing the Study and Collecting Data	correlational studies	14
14.		Research protocols	15
15.		Population sampling	16
16.		Sample size estimation	17
17.		Questionnaire development	18
18.		Surveys and interviews	19
19.		Additional assessment	20
20.		Secondary Analysis & Existing data sets	21
21.		Systematic Reviews & meta-analyses	22
22.		Research ethics and ethical review	23, 24
23.	Step 4: Analysing Data	This is already covered in the statistics course, it won't be included in our course.	
24.			
25.			
26.			
27.	Step 5: Reporting Findings	Article structure and citing,	32, 33
28.		Conclusion	—