

The University of Jordan, School of Medicine
Scientific Medical Research
1st semester 2021/2022

Course title: البحث العلمي الطبي

Course number: 0505308

Credit hours: 3 credit hours

Semester: 1st, 2020/2021

Course Instructor: Jafar Alshraideh, Ph.D.

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Office Hours: Tuesday 1-3 PM and by appointment

Course Description:

This course is designed to provide the students with the essential knowledge and skills of quantitative medical research including the identification of the problem to writing the research paper. This course will deal with the purpose of quantitative medical research, planning of the quantitative medical research (research problem, hypothesis writing, research plan, and ethics in quantitative medical research). It also covers reviewing the literature, sampling and measurement tools, experimental design, internal and external validity of experiments, statistical analysis techniques, data processing and preparing the research report.

Also, the course provides a comprehensive introduction to qualitative paradigm and its current and potential application in medical sciences. The philosophical assumptions behind this kind of research, assumptions underlying various qualitative schools of inquiry (e.g., grounded theory, phenomenology, ethnography, action research, and narrative).

During the course, students are expected to be engaged in actual field work in different areas of Jordan for the purpose of collecting data, producing results, analysing them and writing the research report.

The First semester will only address the quantitative part, Qualitative part will be during the 2nd semester.

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

One exams will be conducted at the end of first semester. The exam will cover the Quantitative research part taught during the first semester.

Evaluation Item	Marks
Exam, end of first semester For the quantitative part taught during the 1 st semester	40%
Total	40 for the quantitative part

Required book:

- Jacobsen, Kathryn H. (2017) Introduction to Health Research Methods: a Practical Guide, 2nd edition. Publisher: Jones & Bartlett Learning.
- Jacobsen, Kathryn H. (2021) Introduction to Health Research Methods: a Practical Guide, 3rd 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* (10th 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-lilbrary.ju.edu.jo>

Teaching Strategies:

Teaching method will rely mostly on students’ self-reading of the required chapters and use of lecture time for students’ questions and discussions of the content and/or any illustrations of some ambiguous content. All lectures will be recorded and made available for students. Students can join the lecture at university or online at the scheduled times or watch it at a convenient time.

Lectures will be as per schedule announced from COM.

Topics' Outline and Schedule (chapter numbers according to 2nd edition of the textbook)

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