



A- COURSE TITLE, CODE, ACADEMIC YEAR:

Research Methods and Biostatistics (MLT 473), 2017

B- COURSE INFORMATION:

Course Code	Course Title	Credit Units			Study Level	Pre-requisites
		Total	Theory	Practical		
MLT 473	Research Methods and Biostatistics	3	2	1	7	
Course Coordinator		Extension		Email Address		
Dr. Naser Rezk		3617		arezk@taibahu.edu.sa		

C- COURSE DESCRIPTION:

Researchers in the medical sciences have found the process of identifying relevant qualitative studies is quite necessary. Health Science professional may discover issues that they did not previously anticipate as likely to be important to their area of study. The main purpose of the Research Methods, Biostatistics course is to introduce students of applied medical sciences to “quantitative and qualitative methods” for conducting meaningful research. Students will gain an overview of research intent and design methodology and technique, format and presentation, and data management and analysis informed by commonly used bio-statistical methods. The course develops each student’s ability to use this knowledge to become more effective medical scientist who can conduct research in his/her field. The course provides an overview of the important concepts of research design, data collection, statistical and interpretative analysis.

D- COURSE OBJECTIVES:

1. Developing a hypothesis, a research problem and related questions
2. Framing the problem with the correct research methodology
3. Develop a design for a research project
4. Ethical consideration in the conduct of research and theory
5. Evaluating feasibility of research proposals
6. Collecting data that accurately addresses the research problem
7. Reviewing descriptive statistics and analyze research data
8. Define basic biostatistics terminologies and concepts
9. Applying biostatics techniques in medical sciences research
10. Interpret the analyses to determine the relevance of the statistical findings
11. Using data to make decisions
12. Improving technical and academic writing
13. Disseminating the results of research project



E- THEORY TOPICS:		
Week	Theory Topic	Contact Hours
1	Concept of Research & its Methodologies (Introduction to The Process of Conducting Research)	2
2	Research Design Introduction	2
3	Introduction to Qualitative Research	2
4	Introduction to Quantitative Research	2
5	Sampling Concepts	2
6	Quantitative Data Collection Instruments	2
7	Introduction to Applied Biostatistics	2
8	Descriptive Statistics	4
9	Inferential Statistics	4
10	Data Mining – Finding the Patterns and Problems in the World of Data	2
11	Scientific Writing, Referencing & Plagiarism (Writing About Qualitative and Quantitative Findings)	2
12	Writing Abstracts, Proposals & Grants (Critically Critiquing Research Reports)	2
13	Quiz and Presentation (Applying Research in the health sciences)	2
14	Quiz and Presentation (Applying Research in the health sciences)	2
15	Revision	

F- PRACTICAL SESSIONS:		
Week	Practical Session	Contact Hours
1	Sampling, data collection, creating tables and graphs, data analysis using SPSS, R and introduction to SAS	4
2	Practice discussing and interpreting research results	2
3	Correlating research finding with research planned objectives	2
4	Practicing research finding dissemination in scientific report, posters, and scientific paper	4
5	Seminar “project development and presentation”	5
6		
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12		
13		
14		
15	Revision	

G- ASSESSMENT TASKS:

#	Type of assessment task	Week	Total Grades
1	Continuous assessment	Weeks 1-13	10%
2	Midterm examination (written)	Week 8	15%
3	Assignment submission	Week 10	5%
4	Final practical exam	Week 16	30%
5	Final written examination	Week 17-18	40%

H- LEARNING RESOURCES:

1- Required textbook:

- a. Hilla Brink, Christa Van der Walt, Gisela Van Rensburg (2006): Fundamentals of Research Methodology for Health Care Professionals
- b. Harvey Motulsk, (2010). Intuitive Biostatistics: A Nonmathematical Guide to Statistical Thinking, Publisher: 2 Revised & enlarged edition Oxford University Press. ISBN-10: 0199730067. ISBN.
- c. Michael R, Chernick, Robert H. Friis (2006). Introductory Biostatistics for Health Sciences: Modern Application. 1 edition. Wiley-Interscience. -13: 978-0199730063.
- d. Bet D. Rober GT. (2004). Basic& Clinical Biostatistics. 4th edition. Lange Medical Books/ McGraw-Hill. ISBN:0-07-141017-1.

2- Essential references:

- a. Paul D. Leedy, Jeanne Ellis Ormrod (2009). Practical Research: Planning and Design. New York: Prentice Hall.
- b. Depoy E., Gitlin LN. (2005). Introduction to Research: Understanding and Applying Multiple Strategies. 3rd ed. St. Louis, MO: Elsevier Mosby. ISBN 0323028535
- c. Bet D. Rober GT. (2004). Basic& Clinical Biostatistics, 4th edition. Lange Medical Books/ McGraw-Hill. ISBN:0-07-141017-1.



Notes:

- Assignments topics and requirements shall be announced by the end of Week-1, the deadline for submission is 12pm Thursday of Week-10 (each semester).
- Assignments and written assessment tasks must be verified against plagiarism, the maximum acceptable percentage is determined by the department (according to each level).
- Continuous assessments may include quizzes, internet searches, home-works, exercises, class activity, scratch cards, presentations, group work, etc.
- Practical exams may contain hands-on experiments, laboratory work, simulations, or demonstrations.
- Written exams will include multiple-choice questions (MCQ), short essay questions, and long essay questions.