

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**مبادئ الوبائيات والإحصاء الحيوي و طرق البحث**

**1437-1438**

**Principles of epidemiology, biostatistics, and research methods**

**(483 وبا-5) (5- 483ERB)**

<b>Institution</b> Najran University	<b>Date of Report</b> 06/06/1438
<b>College/Department</b> College of Medicine	

**A. Course Identification and General Information**

<b>1. Course title and code:</b> Principles of Epidemiology, Biostatistics and Research Method (483 ERB -5) 483 وبا-5	
<b>2. Credit hours</b> 5 (2+3)	
<b>3. Program(s) in which the course is offered.</b> Medicine and Surgery Program	
<b>4. Name of faculty member responsible for the course</b> Dr Moawia Ali Hassan	
<b>5. Level/year at which this course is offered</b> level 8 /4 <sup>th</sup> year	
<b>6. Pre-requisites for this course</b> According to the bylaws	
<b>7. Co-requisites for this course</b> None	
<b>8. Location</b> University Hospital	
<b>9. Mode of Instruction (mark all that apply)</b>	
a) Traditional classroom	<input checked="" type="checkbox"/> what percentage? <input type="text" value="50 %"/>
b) Blended (traditional and online)	<input checked="" type="checkbox"/> what percentage? <input type="text" value="20 %"/>
c) E-learning	<input type="checkbox"/> what percentage? <input type="text"/>
d) Correspondence	<input type="checkbox"/> What percentage? <input type="text"/>
e) Other	<input type="checkbox"/> What percentage? <input type="text"/>
	<input checked="" type="checkbox"/> 30%

**Comments:**  
In addition to the traditional interactive lectures, students are required to write proposal about a selected researchable problem & a report.

**B Objectives**

**1. What is the main purpose for this course? By the end of this course the students are expected to:**

- 1) Describe the concepts and functions of the disciplined concerned with data management i.e. epidemiology, biostatistics and research skills.
- 2) Contribute to the community health development using the principles of epidemiology, biostatistics and research skills.
- 3) Assess and grapple with known or novel theories, problems and principles in medical and health sciences.
- 4) Critically understand and analyze literature relevant to health phenomena.
- 5) Plan, implement and assess research projects in health problems.
- 6) Develop the skills needed in communication of research findings.

**2. Plans for developing and improving the course that are being implemented**

- 1) Continuous updating of the information, knowledge and skills included in the block through the continuous search for new knowledge and skills available in recent publications (books, researches, internet and others).
- 2) Continuous improvements in teaching methods to encourage the students to participate effectively in their various academic activities
- 3) Continuous evaluation of the block content, student level and establish plans for development accordingly.

### C. Course Description

Epidemiology, biostatistics and research skills are considered as the basic subjects of family and community health. They are also essential prerequisites for the understanding of other disciplines; fostering the development of scientific inquiry skills needed in future health workers. Additionally, they have a common task for advancement of human knowledge in health and medical sciences i.e. data management. Hence, it goes without saying that mastering this; health workers will improve their decision-making process. The current course is an attempt to integrate the above mentioned subjects into one block. Not only this, but also the same approach will be adopted during teaching and learning activities and assessment. This is of course will maximize knowledge retention, problem solving skills and application of knowledge. The course is designed to provide an understanding of data management to achieve the following:

- Adopting community-oriented education as a main strategy in learning; to expose the student to the concepts and principles that lie within the context of this block
- Acquisition of problem solving skills that are required to assess community health needs and problems to decide appropriate solutions
- Then the students are expected to learn with the aim of being capable to deal effectively with community health problems
- Understanding of the scientific inquiry related to the phenomena of health and disease in the community is of crucial importance to health professionals.
- Provision of the necessary decision-making skills needed that are important to the career of every health worker.
- Planning a small scale research project to ensure the understanding of the course material

#### 1. Topics to be Covered

List of Topics	lecturer	Weeks	Contact Hours
1) The concept of health and disease: Definitions, epidemiological triad, natural history of disease and dynamics of transmission	Dr. Moawia	0.2	2(2+0)
2) Introduction to the scientific method		0.1	1(1+0)
3) Health information system		0.2	3(1+2)
4) Data variability in health		0.1	1(1+0)
5) Scales of measurement		0.1	1(1+0)
6) Sources of information		0.1	1(1+0)
7) Bias & systematic error	Dr. Adil	0.1	1(1+0)
8) Samples & populations: Sampling techniques and size		0.1	1(1+0)
9) Quantitative data analysis: the mean, mode, median & measures of dispersion		0.3	4(2+2)
10) Qualitative data analysis: the rates, ratio, proportion and percent		0.2	3(1+2)
11) Incidence and prevalence	Dr. Moawia	0.2	2(2+0)
12) Test of hypothesis: The normal curve, Chi square & t-test tests		0.1	1(1+0)
13) The concept of endemicity		0.1	1(1+0)
14) Epidemiology and prevention		0.2	2(2+0)
15) Infectious disease epidemiology		0.1	1(1+0)
16) Screening concept		0.2	3(1+2)
17) Epidemiological studies		0.1	1(1+0)
18) Introduction to research methods		0.2	3(1+2)
19) Selection & statement of the problem		0.1	1(1+0)
20) How to write objectives			

21) How to write a literature review		0.1	1(1+0)			
22) Methods of data collection		0.1	1(1+0)			
23) The questionnaire	Dr. Adil	0.2	3(1+2)			
24) Data presentation						
25) The proposal format						
26) The work plan, investigators & budget						
27) How to write and illustrate research report	Dr. Moawia	0.3	3(3+0)			
28) How to write and illustrate scientific papers	Dr. Moawia	0.1	1(1+0)			
29) Medical ethics (truthfulness, professionalism, safety ,trust, consent, accuracy, integrity, collaboration, anonymity and objectivity)	Dr. Moawia	0.1	1(1+0)			
30) SDL		2	54 (60+0)			
31) Writing the proposal	Student	2	54 (0+54)			
32) Research project	s tasks	4	108 (0+108)			
Total		11.5	234			
2. Course components (total contact hours and credits per semester):						
	Lecture	SDL	Laboratory	Practical (proposal writing)	Other: Field work (research project)	Total
Contact Hours	18	54	-	54	108	234
Credit	1	1	-	1	2	5
3. Additional private study/learning hours expected for students per week. 8						
4. Course Learning Outcomes NQF Learning Domains with Assessment Methods and Teaching Strategy				Teaching Strategies	Assessment Methods	
1.0 Knowledge						
1.1	Describe requirements and uses of health information system.			Interactive lectures	MCQs, Writing a Proposal, and Writing a thesis	
1.2	Describe the principles concepts of research, health statistics and epidemiology.					
1.3	Describe the basic principles, uses and applications of Epidemiology					
2.0 Cognitive Skills						
2.1	Select an appropriate, valid and reliable approach and design suitable for the different health and health-related problems.			Interactive lectures Assignment	MCQs, Writing & Presenting a Proposal, and Writing a thesis	
2.2	Explain the cycle of the natural history of disease and principles of disease causation					
3.0 Interpersonal Skills & Responsibility						
3.1	Perform self directed learning.			Assignment	Writing & presenting a Proposal, and Writing a thesis	
4.0 Communication, Information Technology, Numerical						
4.1	Utilize efficiently the different knowledge resources including the library and websites.			Assignment	Writing a Proposal, Writing a thesis	
5.0 Psychomotor						
5.1	Write a proposal & report research.			Interactive lectures	Writing a Proposal, Writing a thesis	

		Assignment	
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### 5. Schedule of Assessment Tasks for Students during the Course

Assessment task		Week Due	Proportion of Total Assessment
A	<b>Continuous assessment:-</b> 1. Proposal assignment 30 % 2. Midterm exam MCQs 10 %	6 <sup>th</sup>	40%
B	<b>Final course exam</b> 3. End course exam (MCQs) 40% 4. Proposal Presentation 20 %	12 <sup>th</sup>	60%
3	Total Marks		100%

### D. Student Academic Counseling and Support

#### 1. Staff availability for individual student consultations and academic advice:

- 1) Allocation of office hours by the department
- 2) Academic supervision
- 3) Academic surveillance

### E. Learning Resources

#### 1. List Required Textbooks

#### 2. List Essential References Materials (Journals, Reports, etc.)

#### 3. List Recommended Textbooks and Reference Material (Journals, Reports, etc.)

- 1) Health systems research training series. World Health Organization publications, 1992; volume 2 part 1 and 2 designing and conducting HSR projects.
- 2) Stephen P, Shane A. Introduction to research in health sciences, 3<sup>rd</sup>eds, Church, Livingstone, 1995.
- 3) Health research methodology. A guide for training on research skills Manila, WHO, WPRO, 1992.
- 4) Lwanga SK, Cho YT. Teaching health statistics. Geneva, WHO, 1985.
- 5) Lawanga SK, Lemeshow S. Sample size determination in health studies: a practical manual. 1991, WHO publications.
- 6) Park P. Park's textbook of preventive and social medicine, 14<sup>th</sup>, ed. India, M/S Bandrsida; Bharot, 1995.
- 7) Last JM. Dictionary of Epidemiology, 3<sup>rd</sup> edition. New York, Oxford University Press, 1995

#### 4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

- 1) [www.ICMJE.org](http://www.ICMJE.org)
- 2) [www.WAME.org](http://www.WAME.org)
- 3) [pdf version.](#) 
- 4) <http://jb.asm.org/misc/ifora.shtml>
- 5) <http://uk.groups.yahoo.com/group/researchcourse> (web site for the students for resource)

#### 5. Others

### F. Facilities Required

#### Requirements for the course including size of classrooms and laboratories

#### 1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- 1) Lecture room suitable for students.
- 2) Tutorial room
- 3) Health centers for field work
- 4) Teaching hospital for bedside teaching.

## 2. Computing resources (AV, data show, Smart Board, software, etc.)

- 1) Computers, multimedia in lecture room and laboratories.

## 3. Others

- 1) Library supplied with reference text books, electronic resources.

## G Course Evaluation and Improvement Processes

### 1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- 1) Continuously throughout the course by direct interviewing of the students.
- 2) End of course questionnaire

### 2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- 1) Feedback from colleagues in the department.
- 2) Class observation by the instructors & by supervisors of students in writing their proposals.

### 3 Processes for Improvement of Teaching

- 1) Continuous updating of course contents in departmental meetings.
- 2) Regular meetings where problems are discussed and recommendations made.
- 3) Training of the department staff on teaching methods.
- 4) Review of recommended teaching strategies.

### 4. Processes for Verifying Standards of Student Achievement

- 1) Arrange with another institution for common test items included in an exam and compare marks given.
- 2) Invitation of an external examiner on regular bases. (usually 1-2 was not feasible for the time being)
- 3) Usually this is done in the departmental meetings

### 5. Action plan for improvement:

There will be an evaluation at the end of the course to assess the course execution, outcome and feedback from different sources to arrive at an appropriate modifications needed if any. (usually in the department)

Faculty or Teaching Staff: Dr. Moawia Ali Hassan



Signature: \_\_\_\_\_ Date Report completed: 29/08/1438

Received by: \_\_\_\_\_ Dean/Department Head

Signature: \_\_\_\_\_ Date: \_\_\_\_\_