



## Course Specifications

<b>Course Title:</b>	Evidence Based Medicine
<b>Course Code:</b>	EBM354
<b>Program:</b>	Bachelor of Medicine, Bachelor of Surgery (MBBS)
<b>Department:</b>	NA
<b>College:</b>	College of Medicine
<b>Institution:</b>	Alfaisal University

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## A. Course Identification

<b>1. Credit hours:</b> 2 (1+2+0)
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> Sem 5, Year 3
<b>4. Pre-requisites for this course (if any):</b> Sem 3 and 4
<b>5. Co-requisites for this course (if any):</b> None

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	22	49%
2	Project/Presentation	23	51%

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	22
2	Laboratory/Studio	
3	Tutorial	23
4	Others (specify)	
	<b>Total</b>	45

## B. Course Objectives and Learning Outcomes

### 1. Course Description

This course introduces the basic concepts of evidence-based medicine (EBM) and critical appraisal of the medical literature. It consists of two major parts. The first part of this course will be devoted to searching for the best evidence in the medical literature and critically appraising it. Students will be asked to read research articles designed to answer a clinical question and then evaluate their validity and generalizability. The second part of this course will be devoted to learning how to generate evidence. Students will learn different types of research designs from cross-sectional studies to randomized clinical trials (RCTs). Besides, students will be required to write a research proposal addressing a medical question relevant to the Kingdom. Finally, students will be introduced to the basics of the fields of epidemiology and clinical epidemiology.

### 2. Course Main Objective

To introduce the basic concepts of evidence-based medicine (EBM) and critical appraisal of the medical literature, and to the basics of the fields of epidemiology and clinical epidemiology.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
1.1	Define EBM and describe the steps of the practice of EBM.	PLO29
1.2	Distinguish between various levels of evidence.	PLO29
1.3	Describe the main types of epidemiologic study designs.	PLO29
1.4	List and define the elements of a research proposal.	PLO29
2	<b>Skills :</b>	
2.1	Search for and select relevant literature for critical appraisal using Alfaisal Library databases.	PLO29
2.2	Formulate clinical questions and make them answerable in a scientific way (PICO questions).	PLO29
2.3	Critically appraise different types of study design and decide whether to incorporate the findings into your clinical practice.	PLO29
2.4	Write a research proposal to address a research question relevant to the Kingdom.	PLO29
2.5	Work in teams to effectively interpret and present results of journal articles using an EMB approach.	PLO29,30
2.6	Apply the basic epidemiological concepts used in the medical and public health literature.	PLO29
2.7	Apply the fundamentals of biomedical research ethics and local IRB policies and procedures.	PLO29
2.8	Formulate evidence-based strategies for medical and surgical disorders.	PLO29,30
3	<b>Values:</b>	
3.1	Adhere to the attendance policy.	
3.2	Maintain professional conduct with colleagues, faculty, and staff.	

### C. Course Content

No	List of Topics	Contact Hours
1	Introduction to the practice of Evidence-Based Medicine (EBM)	1
2	Making the most of available Alfaisal Library resources	1
3	Search for evidence	1
4	Hierarchy of evidence and evidence grading systems	1
5	Formulate clinical questions (PICO questions)	1
6	Evaluating published evidence	1
7	Generating evidence: Evidence generating medicine (EGM)	1
8	Fundamentals of epidemiology	2
9,10	Study designs	4
11	Introduction to biomedical research ethics	1
12	Introduction to scientific writing	2
13,14	Writing a research proposal	4
15	EBM in a clinical setting	1
16	Special topics: Introduction to clinical epidemiology	1
17	Project/Student Presentations	23
<b>Total</b>		<b>45</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and Understanding</b>		
1.1	Define EBM and describe the steps of the practice of EBM.	Lectures	Summative assessment
1.2	Distinguish between various levels of evidence.	Lectures	Summative assessment
1.3	Describe the main types of epidemiologic study designs.	Lectures	Summative assessment
1.4	List and define the elements of a research proposal.	Lectures	Summative assessment
<b>2.0</b>	<b>Skills</b>		
2.1	Search for and select relevant literature for critical appraisal using Alfaisal Library databases.	Lectures, Projects/Presentations	Summative assessment
2.2	Formulate clinical questions and make them answerable in a scientific way (PICO questions).	Lectures, Projects/Presentations	Summative assessment
2.3	Critically appraise different types of study design and decide whether to incorporate the findings into your clinical practice.	Lectures, Projects/Presentations	Summative assessment
2.4	Write a research proposal to address a research question relevant to the Kingdom.	Lectures, Projects/Presentations	Summative assessment
2.5	Work in teams to effectively interpret and present results of journal articles using an EMB approach.	Projects/Presentations	Summative assessment
2.6	Apply the basic epidemiological concepts used in the medical and public health literature.	Lectures, Projects/Presentations	Summative assessment
2.7	Apply the fundamentals of biomedical research ethics and local IRB policies and procedures.	Lectures, Projects/Presentations	Summative assessment
2.8	Formulate evidence-based strategies for medical and surgical disorders.	Lectures, Projects/Presentations	Summative assessment
<b>3.0</b>	<b>Values</b>		
3.1	Adhere to the attendance policy.		Continuous assessment
3.2	Maintain professional conduct with colleagues, faculty, and staff.		Continuous assessment

### 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Project/Presentation	Weekly	15%
2	Mid-term	9	25%
3	Final Exam	18	60%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

### Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

The CoM program established its own mentorship program that employs all full-time faculty as mentors. Through this program, every medical student in the program is assigned a mentor at the beginning of their first semester of studies. The program has a broad scope covering academic advising and counseling. The mentors handle all aspects related to academic advising, including academic planning, academic performance review, advice on course drop or withdrawal, study skills, and time management.

## F. Learning Resources and Facilities

### 1. Learning Resources

<p><b>Required Textbooks</b></p>	<ul style="list-style-type: none"> <li>• Sackett DL, Richardson WS, Rosenberg W, Haynes RB. Evidence-Based Medicine: How to Practice &amp; Teach EBM. Churchill Livingstone.</li> <li>• Stephen B. Hulley, S.R. Cummings, "Designing Clinical Research: An Epidemiological Approach" 2000. Williams and Wilkins Press.</li> <li>• Steven Polgar and Shane Thomas. "Introduction to Research in the Health Sciences" 3rd edition, Latest Edition. Churchill and Livingstone Press.</li> </ul>
<p><b>Essential References Materials</b></p>	<ul style="list-style-type: none"> <li>• Mayer, D. Essential Evidence-Based Medicine. 2010. 2<sup>nd</sup> ed. ISBN 978-0-521-71241-5 <a href="http://www.nogracias.eu/wp-content/uploads/2011/06/Essential_Evidence_based_Medicine.pdf">http://www.nogracias.eu/wp-content/uploads/2011/06/Essential_Evidence_based_Medicine.pdf</a></li> <li>• Merrill RM. <i>Introduction to Epidemiology</i>. Fifth Ed. Jones and Bartlett Publishers. Sudbury, MI. 2010.</li> <li>• Rothman KJ, Greenland S, Lash TL. <i>Modern Epidemiology</i>. Third Ed. Lippincott Williams &amp; Wilkins. London. 2008.</li> <li>• Fletcher RH, Fletcher, SW. <i>Clinical Epidemiology, The Essentials</i>. Fourth Ed. Lippincott Williams &amp; Wilkins. London. 2005.</li> <li>• Grobbee D E, and Hoes AW. <i>Clinical Epidemiology. Principles, Methods, and Applications for Clinical Research</i>. Jones and Bartlett Publishers, Sudbury, MI. 2009</li> <li>• Sullivan LM. <i>Essentials of Biostatistics in Public Health</i>. Jones and Bartlett Publishers. Sudbury, MI. 2008</li> <li>• Conover, W. J. (1980). <i>Practical nonparametric statistics</i>, 2<sup>nd</sup> Edition. New York: John Wiley and Sons.</li> <li>• Coggon, Rose &amp; Barker (2000) <i>Epidemiology for the uninitiated</i>, fourth edition, BMK online: <a href="http://www.bmj.com/about-bmj/resources-readers/publications/epidemiology-uninitiated">http://www.bmj.com/about-bmj/resources-readers/publications/epidemiology-uninitiated</a></li> <li>• Medical Uses of Statistics by JC Bailar III and F. Mosteller. 2nd Edition. 1992. NEJM Books, Boston, MA. ISBN: 0-910133-36-0.</li> </ul>

<b>Electronic Materials</b>	PowerPoint presentations uploaded on Alfaisal E-learning Portal <ul style="list-style-type: none"> <li>• World Health Organization (WHO) <a href="http://www.who.int/en/">http://www.who.int/en/</a></li> <li>• American Public Health Association (APHA) <a href="http://www.apha.org/">http://www.apha.org/</a></li> <li>• Infectious Diseases Society of America (IDSA) <a href="http://www.idsociety.org/">http://www.idsociety.org/</a></li> <li>• United States Centers for Disease Control and Prevention (CDC) <a href="http://www.cdc.gov/">http://www.cdc.gov/</a></li> <li>• Center for Evidence-Based Medicine <a href="http://www.cebm.net/">http://www.cebm.net/</a></li> <li>• Science Direct <a href="http://www.sciencedirect.com/science">http://www.sciencedirect.com/science</a></li> <li>• Academic Search Premier <a href="http://search.ebscohost.com/">http://search.ebscohost.com/</a></li> <li>• StatRef Medical eBooks <a href="http://10.0.90.9/statref/">http://10.0.90.9/statref/</a></li> <li>• PubMed <a href="http://www.PubMed.gov">www.PubMed.gov</a></li> </ul>
<b>Other Learning Materials</b>	<ul style="list-style-type: none"> <li>• Cochrane Library <a href="http://www.cochrane.org/cochrane-reviews">http://www.cochrane.org/cochrane-reviews</a></li> </ul>

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	AV (Audio-Visual), Smartboard, Moodle (E-learning Management)
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Course and Faculty Evaluation Survey	Students	Survey

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

Council / Committee	
Reference No.	
Date	