



**Jordan University of Science and Technology**  
**Faculty of Medicine**  
**Second Semester 2019-2020**

<b>Course Name</b>	Health Economics and Epidemiology
<b>Course Symbol</b>	MED 284
<b>Credit Hours</b>	2
<b>Sequence</b>	Year 2, 1 <sup>st</sup> semester
<b>Class Meetings</b>	Sunday, 11:30-1:20, Thursday, 9:30-11:30
<b>Instructor</b>	Dr. Khalid A. Kheirallah Dept. of Public Health Dr. Alaa Dalky Dept. of Health Management and Policy.
<b>Office Hours</b>	Tuesday 10-12 Thursday 2:30 – 3:30
<b>Email</b>	<a href="mailto:kakheirallah@just.edu.jo">kakheirallah@just.edu.jo</a> <a href="mailto:afdalky@just.edu.jo">afdalky@just.edu.jo</a>

## SECTION 1: GENERAL INFORMATION

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### 1.1 COURSE DESCRIPTION

This course introduces students of medicine to the subjects of health economics and epidemiology. It consists of two parts: Part 1 focuses on health economics. Topics include; nature and role of health care economics as a discipline in the provision and delivery of health services; the special features of health care products compared with other economic goods and services; the concepts of need, demand, supply and utilization of health care services;; methods of financing health services and reimbursement of services; the rising cost of health services and strategies of cost containment; economic evaluation and analysis of cost-effectiveness of health care alternatives and procedures.

Part 2 focuses on principals of epidemiology. The course introduces the basic concepts of epidemiology and biostatistics as applied to public health problems within health economic framework. Emphasis is placed on the principles and methods of epidemiologic investigation, appropriate summaries and displays of data, and the use of classical statistical approaches to describe the health of populations. Topics include the dynamic behavior of disease; usage of rates, ratios and proportions; methods of direct and indirect adjustment, and clinical life table which measures and describes the extent of disease problems. Various epidemiologic study designs for investigating associations between risk factors and disease outcomes are also introduced, culminating with criteria for causal inferences. The application of these disciplines in the areas of health services, screening, genetics, and environment policy are presented. The influence of epidemiology and biostatistics on legal and ethical issues are also discussed.

### 1.2 COURSE GOALS

1. Introduce the students to the concepts and principles of health care economics.
2. Introduce the students to the concepts and principles of epidemiology as it applies to health economics.

### 1.3 COURSE LEARNING OUTCOMES

Upon completion of this course, students will be able to:

1. Understand the various concepts and principles of health economics.
2. Apply cost efficiency and economic evaluation methods in medical decision-making.
3. Evaluate health production in health organizations
4. Understand the application of epidemiologic principles within the scope of conducting research in clinical and basic sciences.
5. Apply measures of disease frequency and associations in epidemiology.
6. Evaluate various types of study designs used in epidemiology
7. Evaluate types of associations between disease and exposure

### 1.4 REQUIRED TEXTS

Author	Title	Year - Edition	Publisher	ISBN
Diane M. Dewar	Essentials of Health Economics	2010-1 <sup>st</sup> edition 2015-2 <sup>nd</sup> edition	Jones & Bartlett Learning	ISBN-10: 1284054624 ISBN-13: 978 1284054620
Rothman, KJ.	Epidemiology: An introduction	2012-2 <sup>nd</sup> edition (newer versions are also accepted)	Oxford University Press, NY	

### 1.5 Assessment Policy

Assessment Policy		
Assessment Type	Expected Due Date	Weight
Mid exam	By the registrar	55%
Participation	By the registrar	5%
Final Exam	By the registrar	40%

### 1.6 Attendance Policy

- ✓ Class attendance is mandatory for the purpose of developing scholarly discussion and argumentation skills. If you are unable to attend class, it is your responsibility to inform the instructor before the class meeting.
- ✓ JUST policy requires the faculty member to assign ZERO (Grade: 35%) if a student misses 10% of the classes that are not excused.

## SECTION 2: COURSE WEEKLY PLAN

Week No/ Date	Chapter	Reading material
1	The Role of Economics in the health industry	Chapter 2 Dewar
2+3+4	Are health care services different from economic goods and other social services? The special features of health care services. The Need, Demand and Supply for Health Care.	Chapters 3 & 4 Dewar
5	The Market for Health Insurance and its influence on utilization and cost of health care.	Chapter 5 Dewar
6	Healthcare Production, and Costs	Chapter 9 Dewar
7	Economic Evaluations	
8+9	<p><b>Review of basic Epi concepts</b></p> <p><b>Epidemiological Measures of Disease Occurrence:</b></p> <ol style="list-style-type: none"> <li>1. List measures of disease occurrence</li> <li>2. Understand the use of each measure</li> <li>3. Define prevalence and incidence</li> </ol>	Rothman, 2012
9+10+11	<p><b>Causality:</b></p> <ol style="list-style-type: none"> <li>1. Identify exposure, outcome, interventions,</li> <li>2. Draw causal diagrams.</li> <li>3. Comprehend the meaning and differences between systematic &amp; random errors.</li> </ol> <p><b>Study design in epidemiologic studies; characteristics, utilization, and advantages/disadvantages.</b></p> <ol style="list-style-type: none"> <li>1. Random Clinical Trials and Experimental Designs (RCTs)</li> <li>2. Cohort studies</li> <li>3. Case Control studies</li> </ol>	
12	<p><b>Pharmaco-economics; basic concepts. Guest lecturer</b></p> <ol style="list-style-type: none"> <li>1. Apply epidemiological and health economics concepts in pharmacological sciences within health care settings.</li> </ol>	

13	Health Insurance; Epidemiologic prospective. Guest lecturer 1. Identify basic research results related to health insurance in Jordan. 2. Identify measures of health outcomes, within health economic prospective, in Jordan.	Rothman, 2012
14	<b>Bias:</b> 1. Apprehend theory, conduct; selection bias (missing data, Berkson's bias 2. Understand information and misclassification bias.	Rothman, 2012
15	<b>Case-Control Designs:</b> 1. Understand the design the an power of case-control designs 2. Describe the advantages and disadvantages of this design 3. Calculated summary measures associated with such designs.	Rothman, 2012
16	<b>Cross-Sectional and other observational studies:</b> 1. Understand the design the an power of case-control designs 2. Describe the advantages and disadvantages of this design 3. Calculated summary measures associated with such designs 4. Describe case-series, case-study and ecological designs	Rothman, 2012
17	<b>Final Exam</b>	

<b>Additional Notes</b>	
Cheating	- Standard JUST policy will be applied  المادة 7 : اذا ضبط الطالب أثناء الإمتحان أو الإختبار متلبساً بالغش فتوقع عليه العقوبات التالية مجتمعة: أ. اعتباره راسياً في ذلك الإمتحان أو الإختبار. ب. الغاء تسجيله في بقية المساقات المسجل لها في ذلك الفصل. ج. فصله من الجامعة لمدة فصل دراسي واحد وهو الفصل التالي للفصل الذي ضبط فيه.

Student Learning Outcomes(SLOs)

<b>Student Learning Outcomes(SLOs)</b>			
Upon successful completion of this course, students should be able to:			
<b>SLOs</b>	<b>Related ILO(s)* (numbers only)</b>	<b>Evaluation Criteria (MCQ, OSCE, Homework...)</b>	
		<b>Type of Criteria (MCQ, OSCE, Homework...)</b>	<b>Weight (%)</b>
Understand the various concepts and principles of health economics.	<b>7,10</b>	<b>MCQ</b>	<b>20</b>
Apply cost efficiency and economic evaluation methods in medical decision-making..	<b>7,10</b>	<b>MCQ</b>	<b>20</b>
Evaluate health production in health care organizations	<b>7,10</b>	<b>MCQ</b>	<b>20</b>
Identify and resolve various epidemiologic designs for investigating associations between risk factors and disease outcomes.	<b>10, 7</b>	<b>MCQ</b>	<b>20</b>
Appreciate and understand the role of epidemiology and its measures that describe the extent of disease problems.	<b>10, 7</b>	<b>MCQ</b>	<b>20</b>
			<b>100</b>

<b>Assessment</b>		
<b>Assessment Type</b>	<b>Expected Due Date</b>	<b>Weight</b>
Midterm Exam		<b>55</b>
Evaluation		<b>5</b>
<b>Final Exam (Theory)</b>		<b>40</b>
<b>Total</b>		<b>100</b>