

Republic of Yemen
Ministry of Higher Education & Scientific Research
21 September University for Medicals and Applied Sciences



Faculty of Clinical Pharmacy

Program of Clinical Pharmacy & Pharm. D.

Course Specification of [Pharmacoeconomics & Health Outcomes](#)

Course No (02.02.233)

2021/2022

Prepared by:
Prof. Ali Alkaf

Reviewed by:

Head of the Department:
Dr. -----

Vice Dean for Quality Affairs
Dr. Abdulelah Thabet

Dean of College:
Dr. Ali Alyahawi

I. Course Identification and General Information:

1	Course Title:	Pharmacoeconomics & Health Outcomes				
2	Course Code & Number:	02.02.233				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	
4	Study level/ semester at which this course is offered:	5 th Year- 1 st Semester				
5	Pre –requisite (if any):	Pharmacy management , Biostatistics , Community Pharmacy , Pharmacology				
6	Co –requisite (if any):	Pharmacotherapy				
7	Program (s) in which the course is offered:	Bachelor of Clinical Pharmacy & Pharm. D.				
8	Language of teaching the course:	English				
9	Study System	Semester based System				
10	Mode of delivery:	Full Time				
11	Location of teaching the course:	Faculty of Clinical Pharmacy				
12	Prepared By:	Prof. Ali Alkaf				
13	Date of Approval					

II. Course Description:

The course aims to provides the principles and tools of pharmacoeconomics and health outcomes assessment that ensure effectiveness & efficiency of treatments and help them in and determining which alternative produces the best health outcome for the available budget. It also help pharmacist to understand the basic concepts of pharmacoeconomics and its application in informing health decisions and resource allocation.

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III. Course Intended learning outcomes (CILOs) of the course		Referenced PILOs
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:		
a.1	Define basic concepts of pharmacoeconomics	A4
a.2	Describe the different types of economic evaluations and their use	A5
B. Intellectual Skills: Upon successful completion of the course, students will be able to:		
b.1	Analyze economic decisions within an environment of limited and scarcity of resource	B3
b.2	Critically appraise published articles on economic evaluation to draw useful conclusions	B5
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:		
c.1	Implement incremental analysis that ensure resource utilization & re-allocation in health system	C4
c.2	Select the appropriate decision to solve problems based on clinical and market settings	C3
D. Transferable Skills: Upon successful completion of the course, students will be able to:		
d.1	Share economic information to decision makers to inform policy and management decisions	D1
d.2	Present new advances in science related to the profession that ensure patient safety and satisfaction	D3

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1- Define basic concepts of pharmacoeconomics	Mixed	Written exam

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		Quiz
a2- Describe the different types of economic evaluations and their use.	Mixed	Written Exam Quiz

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1- Analyze economic decisions within an environment of limited and scarcity of resource	Mixed	Exam Assignment Quiz
b2- Critically appraise published articles on economic evaluation to draw useful conclusions	mixed	Exam Assignment Quiz

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1- Implement incremental analysis that ensure resource utilization & re-allocation in health system	mixed	Written Exam Quiz
c2- Select the appropriate decision to solve problems based on clinical and market settings	mixed	Exam Assignment Quiz

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1- Share economic information to decision makers to inform policy and management decisions	Mixed	Seminar Discussion
d2- Present new advances in science related to the profession that ensure patient safety and satisfaction	Mixed	Assignment Exam

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IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	Introduction	a1, a2	- Introduction to health/Pharmacoeconomics	1	2
2	Basic concepts and terminology in Pharmacoeconomics	a1, a2	- Determination of cost and outcomes - Perspectives of pharmacoeconomics evaluations	2	4
3	Type of pharmacoeconomics evaluations	b1, b2	- Cost –minimization analysis (CMA) - Cost effectiveness analysis (CEA) - Cost utility analysis (CUA) - Cost benefit analysis (CBA) Budget Impact analysis (BIA) - Cost of illness	4	8
4	Midterm Exam			1	2
5	Techniques for the analysis of pharmacoeconomics	a1, a2, b1, b2	- Sensitivity analysis - Decision analysis and incremental cost analysis - Discounting in health costs	2	4
6	Seminars	a1, a2, b1, b2, c1, c2, d1, d2	- Critical appraisal of economic evaluations	1	2
7	BIA	b1, b2, c1, c2, d1, d2	- Impact of new drug on budget.	1	2
8	Modeling	a 2, b1, b2	- Various model used , DT, Dynamic, Static , Markove & simulations	2	4
9	Application of pharmacoeconomics	c 1, c2, d1, d2	- Pharmacoeconomic guidelines worldwide - Applied pharmacoeconomics in Yemen	1	2
10	Final Exam	a 1, a2, b1, b2, c 1, c2, d1, d2		1	2
Number of Weeks /and Units Per Semester				16	32

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B - Practical Aspect: (if any)

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Nil			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Number of Weeks /and Units Per Semester				

V. Teaching strategies of the course:

- lecture – Discussion
- Assignments
- Seminars
- Feed-back learning
- Group projects

VI. Teaching strategies of the course:

- Exam
- Assignments
- Quiz

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VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Cost of illness for pyelonephritis & Diabetic Type 2 through group discussion, study evaluation, and individual reporting	All CILOs	Week 3	2.5
2	Market sensitivity for drugs Forecasting for the future sales of specific drug	All CILOs	Week 6	2.5
3	Time money value from retrospective data forecast the next year pharmacy budget	All CILOs	Week 12	2.5
4	Cost effectiveness by implementing the incremental analysis to show which drug is more cost effective	All CILOs	Week 14	2.5
Total				10

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	Week 3, 6, 12, 14	10	10%	a 1, a2, b1, b2, c1, c2, d2
2	Quiz 1	Week 6	5	5%	a 1, a2, b1, b2, c1, c2, d2
3	Mid-semester exam	Week 8	10	10%	a 1, a2, b1, b2, c1, c2, d2
4	Quiz 2	Week 12	5	5%	a 1, a2, b1, b2, c1, c2, d2
5	Final exam	Week 16	70	70%	a 1, a2, b1, b2, c1, c2, d2
Total			100	100%	

IX. Learning Resources:

- Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

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	- DiPiro et al, 2020. Pharmacotherapy: A Pathophysiological Approach, ed.: Pharmaeconomic Chapter, 11th edition
2- Essential References.	
	1. Renee J. G. Arnold, 2016. Pharmacoeconomics: From Theory to Practice, 1st Edition, https://doi.org/10.1201/9781420084405
	2. J. Lyle Bootman, Raymond J. Townsend, William F. McGhan, 2004. Principles of Pharmacoeconomics, 3ed , 978-0929375274
	3. Yi Yang, Donna West-Strum, 2011. Understanding Pharmacoepidemiology. 978-0-07-16350
3- Electronic Materials and Web Sites etc.	
	- ISPOR web-site
	- www.en.wikipedia.org/

I. Course Policies: (Based on the Uniform Students' Bylaw (2007))	
1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
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7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

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II. - Information about Faculty Member Responsible for the Course:

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Prof. Ali Alkaf	Dr. Ali Alyahawi	Dr. -----	Dr. Abdulelah Thabet	Dr. Ali Alyahawi

Name of Faculty Member	Prof. Ali Alkaf	Office Hours					
Location & Telephone No.		SAT	SUN	MON	TUE	WED	THU
E-mail							

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2	Course Code & Number:	02.02.233				
3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2	-	-	-	
4	Study level/ semester at which this course is offered:	Fourth Year- Second Semester				
5	Pre –requisite (if any):	Pharmacy management , Biostatistics , Community Pharmacy , Pharmacology ,PK				
6	Co –requisite (if any):	Pharmacotherapy				
7	Program (s) in which the course is offered:	Bachelor of Clinical Pharmacy & Pharm. D.				
8	Language of teaching the course:	English				
9	Study System	Semester based System				
10	Mode of delivery:	Full Time				
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IV. Course Intended learning outcomes (CILOs)	
Upon completion of this Course, student will be able to:	
a.1	Define basic concepts of pharmacoeconomics
a.2	Describe the different types of economic evaluations and their use
b.1	Analyze economic decisions within an environment of limited and scarcity of resource
b.2	Critically appraise published articles on economic evaluation to draw useful conclusions
c.1	Implement incremental analysis that ensure resource utilization & re-allocation in health system
c.2	Select the appropriate decision to solve problems based on clinical and market settings
d.1	Share economic information to decision makers to inform policy and management decisions
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4	Midterm Exam		1	2
5	Techniques for the analysis of pharmacoeconomics	- Sensitivity analysis - Decision analysis and incremental cost analysis	2	4

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		- Discounting in health costs		
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Number of Weeks /and Units Per Semester			16	32

B - Practical Aspect: (if any)			
Order	Tasks/ Experiments	Week Due	Contact Hours
1	Nil		
2			
3			
4			
5			
6			
7			
8			
Number of Weeks /and Units Per Semester		14	28

VI. Teaching strategies of the course:
- Lecture – Discussion - Assignments - Seminars - Feed-back learning - Group projects
VII. Assessment strategies of the course:
- Exam - Assignments - Quiz

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