Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY of MEDICALS & APPLIEED

SCIENCES

Faculty of Laboratory medicine..

Department of Hematology

Course Specification of Biomedical Statistics & Epidemiology

Course No. (03,13,318)

2022/2023

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
- Dr. Ebtesam Mahdi Al-Zabedi	Dr\ DrNawal Al-Henhena	Dr\Gamil Taher Abdul Mughni	Dr\Gamil Taher Abdul Mughni	- Associate Prof. Dr. Ebtesam Al-Zabedi

I. Course Identification and General Information:

1	**Course Title:**	Biomedical Statistics & Epidemiology			
2	**Course Code & Number:**	03,13,318			
3	**Credit Hours:**	**Theory Hours**			
		Lecture	**Exercise**	Practical	**Credit Hours**
		2	0	2	3
4	**Study Level/ Semester at which this Course is offered:**	1st Level / 1st Semester			
5	**Pre –Requisite (if any):**	None			
6	**Co –Requisite (if any):**	None			
7	**Program (s) in which the Course is Offered:**	Master Degree Medical Diagnostic Hematology			
8	**Language of Teaching the Course:**	English			
9	**Study System:**	Semester			
10	**Mode of Delivery:**	Regular			
11	**Location of Teaching the Course:**	University Campus			
12	**Prepared by:**	- Associate Prof. Dr. Ebtesam Al-Zabedi			
13	**Date of Approval:**	2022-2023			

II. Course Description:

This course provides an advanced introduction to the statistical and epidemiological methods used in public health research. Topics include descriptive statistics, probability distributions, parameter estimation, hypothesis testing, sampling techniques, analysis of variance, and correlation. It provides basic training in statistical analysis using statistical software

III. Alignment Course Intended Learning Outcomes with program outcomes		
III. Course Intended Learning Outcomes (CILOs)		**Referenced PILOs**
A. Knowledge and Understanding: ***Upon successful completion of the course, students will be able to:***		
a1	**Understand** the basic concepts of epidemiology and statistical reasoning to public health research	**A1**
B. Intellectual Skills: ***Upon successful completion of the course, students will be able to:***		
b1	**Interpret and explain** appropriate statistical methods to analyze data	**B1**
b3	**Design** and conduct research studies.	**B3**
C. Professional and Practical Skills: ***Upon successful completion of the course, students will be able to:***		
c1	**Interpret** the results of statistical analyses	**C1**
c2	**Perform** statistical software to analyze data	**C3**
D. Transferable Skills: ***Upon successful completion of the course, students will be able to:***		
d1	Communicate the results of statistical analyses to others	**D1**

IV. Alignment Course Intended Learning Outcomes with Teaching Strategies and Assessment methods :			
(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	**understand** and apply the basic concepts of epidemiology and statistical reasoning to public health research	Lecture	Exam
(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1	**Identify** and assess causal relationships between exposures and outcomes	Lecture	Exam
B2	**Design** and conduct research studies.	Lecture	Exam
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	**Interpret** the results of statistical analyses	Lecture Discussion Presentation	Exam Discussion Presentation
C2	**Perform** statistical software to analyze data	Lecture Discussion Presentation	Exam Discussion Presentation
(D Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1	**Communicate** the results of statistical analyses to others	Lecture Discussion Presentation	Exam Discussion Presentation
	Apply ethical and legal principles to the use of epidemiologic data	Lecture Discussion Presentation	Exam Discussion Presentation

V. Course Content:

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A – Theoretical Aspect:					
NO.	**Units/Topics List**	**Sub Topics List**	**Number of Weeks**	**contact hours**	**Learning Outcomes (CILOs)**
1	introduction to statistics AND basic statistical concepts	- Overview of biostatistics and epidemiology - Data types and measurement scales - Sampling and bias - Study designs in epidemiology	1	2	a1,b1,b2, b3,c1,c4, d1
2	Descriptive study	Measures of central tendency Measures of dispersion	2	4	
3	Estimation of population	Parametric tests and non-parametric tests, variables, variance			
4	Linear Regression Analysis	- Simple linear regression - Multiple linear regression - Model selection and assumptions - Generalized linear models	2	4	a1,b1,b2, b3,c1,c4, d1
5	Logistic Regression Analysis (	- Binary logistic regression - Multinomial and ordinal logistic regression - Model selection and interpretation - Goodness-of-fit and diagnostics	1	2	a1,b1,b2, b3,c1,c4, d1
8	MED TERM		1	2	a1,b1,b2, b3,c1,c4, d1
9	Introduction to epidemiologic methods	Definition Important	1	2	a1,b1,b2, b3,c1,c4, d1
10	**Descriptive epidemiology**:	Distribution of diseases in populations. measures of disease frequency incidence prevalence methods for describing the distribution of disease in space and time.	3	6	a1,b1,b2, b3,c1,c4, d1
11	**Analytic epidemiology**:	methods for assessing the association between exposures and outcomes, and for controlling for confounding factors.	3	6	a1,b1,b2, b3,c1,c4, d1

16	FINAL THEORTICAL				
			16	0	

V. Teaching Strategies of the Course:	
1-	Lectures
2-	Practical session
3-	Seminars
4	Discussion

VI. Assessment Methods of the Course:

No	Assessment
1	**Written Exams (Short Essays) and Quizzes**
2	Written Exams(MCQ)
3	Structured Oral Exams
4	Objective Structured Practical Exams (OSPE)
5	Student presentation

VII. Assignments:

No.	Assessment Method	Week Due	Mark	Aligned Course Learning Outcomes	
1	**Midterm Exam**	7	20	20%	
2	**Practical exam**	12	30	30%	
3	**Final Exam**	14	50	50%	
4					
	Total		100	100%	

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X. Learning Resources:	
· *Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).*	
1- Required Textbook(s) (maximum two).	
1-	• Biostatistics: A Foundation for Analysis in the Health Sciences, 6th Edition by John P. Kleinbaum, Leslie L. Kupper, and Hal Morgenstern.
2-	• Epidemiology: Beyond the Basics, 2nd Edition by Moyses Szklo and F. Javier Nieto.
2- Essential References.	
1-	Maxcy-Rosenau (2010): Public health and preventive medicine, Prentice- Hall International Inc. 15th edition
2-	o Park K. (2007) eighteenth edition: Environment and Health at Park's textbook of preventive and social medicine. Ms Banarsidas Bhanot, ., India.
3-	o R. Beaglehole , R.Bonita and T Kjellström (2006): Basic Epidemiology .
3- Electronic Materials and Web Sites *etc*.	
1-	International Journal of epidemiology
2-	□□ECMA periodicals
3-	□□www. Who. Int
4-	□□www.cdc.org □□www. BMJ.com Centers for Disease Control and Prevention (.gov) https://www.cdc.gov

XI. *Course Policies:*	
1	**Class Attendance:**
	-If the student dose not attend for more than 6 times, the student will be obligated to withdrew from the course
2	**Tardy:**
	- If the student is late for the lectures for the 2nd time, he will not be allowed to attend this lecture

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3	Exam Attendance/Punctuality:
	- If any student does not attend the exam in the scheduled day, it will consider as a fail for him
4	**Assignments & Projects:**
	- Any student dose not submithis assignment,he will lose its grade.
5	**Cheating:** - ANY STUDENT TRY TO CHEAT IN ANY QUIZ OR EXAM, HE WILL NOT BE ALLOWED TO CONTINUE THE EXAM AND IT WILL CONSIDER AS A FAIL FOR HIM
6	**Plagiarism:**
	- If any student try to plagiarism another student identity, both of them will be convertedto investigation and they might be expelled from the program
7	**Other policies:**
	- Undelivered requirement will not be marked
	- You should leave your dental Chair as clean as possible