Course Specification
(Bachelor)

Course Title:	*Epidemiology*
Course Code:	*BIO1410*
Program:	*Bachelor of Science in Biology*
Department:	*Department of Biology*
College:	*Faculty of Science*
Institution:	*University of Tabuk*
Version:	***Course Specification Version Number***
Last Revision Date:	*September 2023*

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:					
3 Credit (3 Hours - Theory).					
2. Course type					
A.	☐University	☐ College	☒ Department	☐Track	☐Others
B.	☐ Required		☒ Elective		
3. Level/year at which this course is offered: (8th Level / 4th year)					
4. Course general Description:					
The course includes an introduction to epidemiology, key features, and applications of descriptive and analytical epidemiology, frequency measures, calculation and interpretation of ratios, proportions, etc., measuring central location and other statistical parameters, organizing epidemiological data, preparing tables, graphs, and charts, infectious diseases epidemiology, the methods of public health surveillance and investigating an outbreak.					
5. Pre-requirements for this course (if any):					
General Microbiology (BIO1206).					
6. Co-requirements for this course (if any):					
None					
7. Course Main Objective(s):					
At the end of this course the students should be able to: - Identify and describe epidemiology. - Identify methods for calculating epidemiology. - Distinguish measures of central location and dispersion. - Describes how to organize epidemiologic data. - Describes different Infectious Diseases. - Identify process, uses, and evaluation of public health surveillance in Saudi Arabia. - Describes how to investigate an outbreak.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning		

No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	State the basic concepts of epidemiology.	K1	-Lectures. -Class discussion. -Group discussion. -Self-learning. -Case studies.	-Quizzes -Periodic exam. -Final examination. -Class discussion and participation. - Homework (Problem-solving).
1.2	Describe knowledge about applications of descriptive and	K2	-Lectures. -Class discussion. -Group discussion. -Homework assignments.	-Quizzes -Periodic exam.

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	analytical epidemiology.		- Self-learning. -Case studies.	-Final examination. -Class discussion and participation. - Homework (Problem-solving).
2.0	**Skills**			
2.1	Calculate some epidemiological data (i.e. ratios, proportions, incidence rates, mortality rates, prevalence, and years of potential life lost) and present these data in the form of tables, charts, and graphs.	S1	-Lectures. -Short essay -Class discussion. -Group discussion. -Brainstorming.	-Quizzes -reports -Final examination. -Class discussion and participation. - Homework (Problem-solving).
2.2	Employ a calculator and some computer programs in the calculation and analysis of epidemiological data.	S4	-Lectures. -Short essay -Class discussion. -Group discussion. -Brainstorming.	-Quizzes -reports -Final examination. -Class discussion and participation. - Homework (Problem-solving).
3.0	**Values, autonomy, and responsibility**			
3.1	Show the responsibility to solve given assignments on their	V2	-Short essay -Class discussion.	-Class discussion and participation.

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	own and submit them on time.		-Group discussion. -individual or group presentation.	-Homework (Problem-solving).
3.2	Work with groups and different stakeholders in protected areas	V1	-Short essay -Class discussion. -Group discussion. -individual or group presentation.	-Class discussion and participation. -Homework (Problem-solving).

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction: historical perspective of epidemiology.	3
2.	Key Features and applications of descriptive epidemiology.	3
3.	Features of incidence rate and prevalence surveys.	3
4.	Diagnostic tests.	3
5	Patterns of sampling in epidemiological surveys.	3
6.	Key features and applications of analytical epidemiology.	3
7.	Frequency measures used in Epidemiology. Calculation and interpretation of ratios, proportions, incidence rates and mortality rates.	3
8.	Frequency measures used in Epidemiology. Calculation and interpretation prevalence, and years of potential life lost.	3
9.	Measures of central location and dispersion. Calculation and interpretation of mean, median, mode, and ranges.	3
10.	Measures of central location and dispersion. Calculation and interpretation of variance, standard deviation, and confidence interval.	3
11.	Organizing Epidemiologic data. Preparation and application of tables, graphs, and charts such as arithmetic-scale line and scatter diagram, pie chart and box plot.	3
12.	Theoretical epidemiology.	3
13.	Infectious Diseases Epidemiology.	3
14.	Investigating an Outbreak. Steps of an outbreak investigation.	3

15.	Public Health Surveillance: Process, uses, and evaluation of public health surveillance in KSA.	3
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	During whole teaching period	10
2.	Homework (Problem-solving)	3 to 13	5
3.	Class Participation	During whole teaching period	5
4.	1st Periodic exam	6	20
5.	2nd Periodic exam	10	20
6.	Final Theoretical Exam	17	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	- Melissa, M. A., Greg, R. Al., Russell, S. K. and Martha S. W. (2008). Perinatal Epidemiology for Public Health Practice. Springer. ISBN: 0387094385.
Supportive References	- CDC, (2012). Principles of Epidemiology, 3d edition (SelfStudy Course SS1978), An Introduction to Applied Epidemiology and Biostatistics, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), Atlanta, GA 30333. - Handouts are given by the Instructor. - http://www.epidemiolog.net/epid160/lecture /
Electronic Materials	- http://en.wikipedia.org/wiki/epidemiology - http://www.epidata.dk/index.htm
Other Learning Materials	- Search through Google, science direct.com and Wikipedia for related topics.

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Well-equipped classrooms that accommodate a sufficient number of students
Technology equipment (projector, smart board, software)	Multimedia projectors and smart boards.
Other equipment (depending on the nature of the specialty)	Electronic resources and Computers softwires.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	- Students. - Faculty members.	Indirect & direct: - Questionnaires. - Meetings.
Effectiveness of Students assessment	- Quality and development committee. - Department chair.	- Course report. - Program annual report.
Quality of learning resources	- Plan and program committee. - Students. - Staff members.	Indirect & direct: - Questionnaires. - Meetings. - Reports.
The extent to which CLOs have been achieved	- Quality and development committee. - Peer Reviewer. - Program leaders.	Indirect & direct: - Questionnaires. - Meetings. - Reports.
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	PROGRAMS AND STUDY PLANS COMMITTEE
REFERENCE NO.	
DATE	SEPTEMBER 2023