



Course Specification

(Bachelor)

Course Title: Environmental Epidemiology

Course Code: APEP3603

Program: Diploma - Technology of Environmental Protection

Department: Biology

College: Faculty of science

Institution: Umm Al-Qura University

Version: 2

Last Revision Date: 12 / 2024

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A. General information about the course:

1. Course Identification

1. Credit hours:

3 Credits (2 theoretical + 1 Practical)

2. Course type

A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (2nd Year / 3th Level)

4. Course General Description:

This course deals with basic epidemiologic concepts and approaches to population health issues in veterinary and human medicine. The course covers a wide spectrum of topics, some of which (e.g., outbreak investigation, properties of tests) will be treated in more depth, while others (e.g., epidemiologic study design) will be introduced, with more emphasis in subsequent courses.

5. Pre-requirements for this course (if any):

Applied Environmental Microbiology.

6. Co-requisites for this course (if any):

7. Course Main Objective(s):

❖ After completing this course student should be able to:

- Define epidemiology and its relates to other disciplines.
- Define what Disease outbreak is.
- Measuring Disease Frequency.
- List of Infectious disease.
- List Epidemiological Factors associated with hosts.
- List Epidemiology factors of disease transmission.
- Define Environmental Epidemiology.
- Understand and explain how epidemiology is used and applied.
- Understand and be able to apply commonly used terms and methods of epidemiology.
- Define and properly use terms to describe disease and disease transmission.
- Understand and explain what epidemiology is and how it relates to other disciplines.
- Define and properly use terms to describe disease and disease transmission
- Summarize the internal and external structure of the pathogen bacterial cells.
- Develop familiarity with the major types of pathogenic microorganisms and the diseases that they produce in humans.
- Explain, analyze and interpret the laboratory findings.
- Differentiate between the symptom of fungal and bacterial pathogens
- Write briefly the general characterizations of each pathogen bacterial group.
- Understand the disease control and prevention.

2. Teaching mode (mark all that apply)





No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom		80%
2	E-learning		20%
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30h
2.	Laboratory/Studio	14h
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Upon successful completion of this course The student should be aware with: <ul style="list-style-type: none"> Define epidemiology and its relates to other disciplines. Define what Disease outbreak is. Measuring Disease Frequency. List of Infectious disease. List Epidemiological Factors associated with hosts. List Epidemiology factors of disease transmission. 	K1 K2 K3	-The methodology includes a combination of lectures by the lecturer, seminar presentation by the students and web-interactions. - At the end of the programme, students will be divided into groups for seminar presentation on	•Periodical exam and reports 10% •Mid-term theoretical exam 20% •Mid-term practical exam 5% •Final practical exam 15% •Final exam 50%





	<ul style="list-style-type: none"> • Define Environmental Epidemiology. • Understand and explain how epidemiology is used and applied. • Understand and be able to apply commonly used terms and methods of epidemiology. • Define and properly use terms to describe disease and disease transmission. 		<p>important areas of the course to assess their understanding and comprehension of the course.</p> <ul style="list-style-type: none"> - All students will be involved in on-line learning process and each student is required to create an E-mail address to facilitate student web interactions. - Using images and movies - Encouraging students to collect the new information about what the new in microbial physiology - Make the reference books and scientific sites concerning medical microbiology in internet available. 	
2.0	Skills			
2.1	<p>Upon successful completion of this course, the student is expected to be able to:</p> <ul style="list-style-type: none"> • Perform the laboratory experiments precisely • Operate all devices in lab • Prepare different media 	<p>S1</p> <p>S2</p> <p>S3</p>	<ul style="list-style-type: none"> • Case Study • Active learning • Small group discussion 	<ul style="list-style-type: none"> • Evaluate the efforts of each student in preparing the report. • Evaluate the scientific values of reports. • Evaluate the work in team • Evaluation of students presentations
3.0	Values, autonomy, and responsibility			
3.1	<ul style="list-style-type: none"> • Developing oral presentations. • Communicating personal ideas and thoughts. • Work independently and as part of a team to finish some assignments. • Communicate results of work to others. • Use of needed precautions when dealing with pathogen microorganisms • Demonstrate professional attitudes and behaviors towards others. • Propose the smart questions 	<p>V1</p> <p>V2</p> <p>V3</p>	<ul style="list-style-type: none"> - Lab work - Case Study - Active learning - Small group discussion - Homework (preparing a report on some topics related to the course depending on web sites). - Seminars presentation 	<ul style="list-style-type: none"> - Oral exams. - Evaluate the efforts of each student in preparing the report. - Evaluate the scientific values of reports. - Evaluate the work in team





<ul style="list-style-type: none"> •Understand and dissecting the problem so that it is fully solved understood. •Demonstrate the assertiveness for his decision. •Demonstrate his capability for the responsibility and Accountability •Show Effective verbal communication with clarity and must be characterize with the following interpersonal attributes; (verbal communication, Non-verbal communication, good listening for the others, questioning, good manners, problem solving, Social awareness, self-management, responsibility and accountability) •Enhancing the ability of students to use computers and internet. •Interpret the laboratory data •Know how to write a report 		<ul style="list-style-type: none"> - Practical during carryout the experiments in the lab 	<ul style="list-style-type: none"> - Evaluation of the role of each student in lab group assignment - Evaluation of students presentations
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C. Course Content

No	List of Topics	Contact Hours
1.	Introduction: - An Historical Overview of epidemiology - Basic Epidemiology Principles	2
2.	Types of epidemics	2
3.	Measuring Disease Frequency.	2
4.	Disease outbreak.	2
5.	Surveillance or mentoring.	2
6.	Infectious disease epidemiology.	2
7.	Epidemiological Factors associated with hosts.	2
8.	Epidemiology factors of disease transmission.	2
9.	The Importance Of Sampling In Epidepidemiological Surveys Patterns of Sampling In Epidemiological Surveys	2
10.	Disease control and prevention.	2
11.	Types of epidemics	2
12.	Environmental toxins - Introduction of environmental toxicology - Classification and properties of toxic substances. - Toxicokinetic and Toxicodynamic - Acute and Chronic Lethal Effects to Individuals	2
13.	The Concept of Risk	2
14.	Health education	2
15.	Epidemic Diseases Management Plan	2



-Quarantine	
-Veterinary Quarantine	
Total	30

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz 1 (Theory)	3	5%
2.	Midterm examination (Theory)	6	15%
3.	Midterm examination (practical)	7	10%
4.	Group project	9-10	10%
5.	Final examination (practical)	15	20%
6.	Final examination (Theory)	16	40%
	TOTAL	100%	

D. Students Assessment Activities

*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

- 1)- Rothman, Kenneth. J. (2012) Epidemiology An Introduction 2nd edition. Oxford University Press.
 - (2)- Brownson, Ross. C. Petitti, Diana. B. (2006) Applied Epidemiology Theory and Practice 2nd edition. Oxford University Press.
 - Sherris Medical Microbiology, 4th Ed. (2004) Ryan and Ray (Eds.), McGraw-Hill, ISBN: 0-8385-8529-9.
 - Medical Microbiology, A Guide to Microbial Infections: Pathogenesis, Immunity, Laboratory Diagnosis, and Control, 16th Ed. (2002) Greenwood, Slack, and Peutherer (Eds.), Churchill Livingstone; ISBN: 0443-07077-6.
 - Medical Microbiology, 3rd Ed. (2004) Mims, DOckrell, Goering, Roitt, Wakelin, and Zuckerman, Mosby; ISBN: 0-7234-3259-7.
 - Medical Microbiology & Immunology: Examination & Board Review, 7th Ed. (2002) Levinson and Jawetz, Lange Medical Books/McGraw Hill; ISBN: 0-07-138217-8.
- <https://hama-univ.edu.sy/newsites/veterinary/wp-content/uploads/2022/05/%D9%88%D8%A8%D8%A7%D8%A6%D9%8A%D8%A7%D8%AA-%D9%86%D8%B8%D8%B1%D9%8A-%D8%B7%D8%A8-%D8%A8%D9%8A%D8%B7%D8%B1%D9%8A.pdf>



Supportive References	
Electronic Materials	- http://www.cdc.gov/mmwr/
Other Learning Materials	PPT prepared by Lecturer

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> • Class room is already provided with data show. • The area of class room is suitable concerning the number of enrolled students (68) and air conditioned
Technology equipment (projector, smart board, software)	<ul style="list-style-type: none"> • Digital lab containing 15 computers.
Other equipment (depending on the nature of the specialty)	<ul style="list-style-type: none"> • Incubators, autoclaves, measuring equipment, water bath, digital balances, pH meters, safety facilities. • Availability of some reference bacterial strains. • Availability all kits for identification of the microorganisms isolated from different habitats. • Availability of VITEK device for rapid identification of microorganisms.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	<ul style="list-style-type: none"> ➤ Class discussion. ➤ Written feedback by individuals.
Effectiveness of Students assessment	Course instructor Peer reviewer Program director	<ul style="list-style-type: none"> ➤ Course development according to the analysis of student feedback. ➤ Monitoring students' performance throughout the semester using formative assessment.
Quality of learning resources	Course instructor	<ul style="list-style-type: none"> ➤ Attending staff development workshops and programs. ➤ Continuous education.
The extent to which CLOs have been achieved		<ul style="list-style-type: none"> ➤ Variations of teaching strategies including tutorials, PBL and more emphasizing on the practical sessions
Other		

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

Assessment Methods (Direct, Indirect)





G. Specification Approval

COUNCIL /COMMITTEE	Umm Al-Qura University Council
REFERENCE NO.	851141114462/190635
DATE	22/11/1446

