REPUBLIC OF YEMEN
SANA'A UNIVERSITY
Faculty Of Veterinary Medicine
Veterinary Medicine Program

Course Specification of Epidemiology and Public Health

I. Course Identification and General Information:						
1	**Course Title**:	Epidemiology and Public Health				
2	**Course Number & Code:**	IM461				
3	**Credit hours:**	**C.H**				**Total**
		Theoretical	**Practical**	**Training**	**Seminar**	
		2	**1**	**0**	**0**	**3**
4	**Study level/ semester at which this course is offered:**	First Semester of Fourth Year				
5	**Pre –requisite (if any):**	MI353, MI355, MI357				
6	**Co –requisite (if any):**					
7	**Program (s) in which the course is offered:**	Veterinary Medicine				
8	**Language of teaching the course:**	English				
9	**Location of teaching the course:**	Faculty of Veterinary Medicine Building				
10	**Prepared by:**	Dr. Hussein Abdulhadi Nasser Al-Wadei				
11	**Date of approval:**					

II. Course description:

Epidemiology is the basic science of public health which introduces the basic principles and methods with an emphasis on the critical thinking analytical skills and application to clinical practice and research. This course gives students a foundation in the basic concepts of epidemiology. Students will gain knowledge in the distribution and causes of health and disease in different human population. Students will also be able to apply the methods to improve disease outcomes. The course will discuss and cover the biological, behavioral, sociocultural and environmental factors associated with the etiology and distribution of health and disease.

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III. Intended learning outcomes (ILOs) of the course:

(A) Knowledge and Understanding:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: Knowledge and Understanding.

	Program Intended Learning Outcomes (Sub-PILOs) in: Knowledge and Understanding		Course Intended Learning Outcomes (CILOs) in: Knowledge and Understanding
	After completing this program, students will be able to:		**After completing this course, students will be able to:**
A3-	Identifies various causes of animal diseases, animal epidemics and how they can be diagnosed; including common and life-threatening diseases of animals, poultry and fish.	**a1-**	Identify the impact of bias and confounding in epidemiologic studies and to understand the concepts of screening and testing in a range of health and other settings.
A4-	Describes the foundations and procedural steps for treating all diseases that affect different animals, highlighting the medical conditions that need surgical interventions.	**a2-**	Explain the variety of epidemiologic study designs used to examine the health status of a population and be able to evaluate the strengths and limitations of each

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding		Teaching strategies/methods to be used	Methods of assessment
completing this course, students will be able to:		• Lectures • Dialogue and discussion • Practical application (Labs) • Scientific trips	• The written test (Monthly, Midterm, Final) • Short tests (Quizzes) • Oral tests • Practical tests (Lab Test)
A1-	Identify the impact of bias and confounding in epidemiologic studies and to understand the concepts of screening and testing in a range of health and other settings.		
A2-	Explain the variety of epidemiologic study designs used to examine the health status of a population and be able to evaluate the		

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	strengths and limitations of each	• Field and clinical training • Simulation and demos • Brainstorming • Self education	• Evaluation of repor • Assignments (Homeworks) • Projects • Presentations

(B) Intellectual Skills:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: Intellectual skills

Program Intended Learning Outcomes (Sub-PILOs) in Intellectual skills		Course Intended Learning Outcomes (CILOs) of Intellectual Skills	
After completing this program, students will be able to:		**After completing this course, students will be able to:**	
B1-	Competently practices analytical and critical thinking skills in studying and assessing health problems and reading the results of animal medical examinations that is related to sciences.	**b1-**	Evaluate the strengths and limitations of epidemiologic reports
B4-	Determines the appropriate and effective treatment; evaluates all medications used for each condition.	**b2-**	Combine appropriate epidemiological concepts and statistical methods and outline epidemiological measures of disease occurrence, calculate basic measures and describe patterns of disease occurrence.

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Intellectual Skills.		Teaching strategies/methods to be used	Methods of assessment
After completing this course, students will be able to:		• Dialogue and discussion	• The written test
b1-	Evaluate the strengths and limitations of epidemiologic reports		

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b2-	Combine appropriate epidemiological concepts and statistical methods and outline epidemiological measures of disease occurrence, calculate basic measures and describe patterns of disease occurrence.	• Lectures • Practical application (Labs) • Problem Solving • Cooperative learning and working groups • Scientific trips • Field and clinical training • Simulation and demos • Research costs and projects	• Oral tests • Practical tests • Note the performance • Achievement file (Accomplishments) • Evaluation of reports • Evaluating student presentations

(C) Professional and Practical Skills:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: Professional and Practical Skills

Program Intended Learning Outcomes (Sub-PILOs) in Professional and Practical Skills		Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	
After completing this program, students will be able to:		**After completing this course, students will be able to:**	
C1-	Accurately records a comprehensive pathological story of a sick animal including information on healthy behavior and the necessary checks.	**c1-**	Apply theories, concepts, methods, and tools of public health data collection, analysis and interpretation that are essential to public health practice
C2-	Practices practical, diagnostic, clinical and research skills, including the collection of samples in various fields of veterinary medicine and related sciences, in a safe and effective manner, considering the	**c2-**	Express of routine sources of data used in descriptive epidemiology, and appreciate their strengths and limitations

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	ethics of the profession.		

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills		Teaching strategies/methods to be used	Methods of assessment
After completing this course, students will be able to:		• Practical application (Labs) • Problem Solving • Cooperative learning and working groups • Scientific trips • Case Study • Field and clinical training • Simulation and practical presentations • Research costs and projects	• Practical tests • Note the performance • The written test • Oral tests • Achievement file • Evaluation of reports • Evaluating student presentations
c1-	Apply theories, concepts, methods, and tools of public health data collection, analysis and interpretation that are essential to public health practice		
c2-	Express of routine sources of data used in descriptive epidemiology, and appreciate their strengths and limitations		

(D) General / Transferable Skills:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: General and Transferable skills

Program Intended Learning Outcomes (PILOs) in General / Transferable skills	Course Intended Learning Outcomes (CILOs) in General / Transferable skills
After completing this program, students will be able to:	**After completing this course, students will be able to:**

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D1-	Communicates effectively with other fellow professions and animal owners and expresses his ideas clearly and objectively.	**d1-**	Communicate epidemiologic information to lay and professional audiences
D2-	Develops his scientific, professional, research capabilities on his own, and follows what is emerging in his field of specialization, including computer applications and information and communication technology.	**d2**	Apply key ethical issues to the conduct of epidemiological and other scientific investigations

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills		Teaching strategies/methods to be used	Methods of assessment
After completing this course, students will be able to:		• Dialogue and discussion • Cooperative learning and working groups • Scientific trips • Research costs and projects • Self education • Demo and practical presentations • Problem Solving	• Achievement file • Evaluation of reports • Evaluating student presentations. • Note the performance. • Practical tests. (Lab Test)
d1-	Communicate epidemiologic information to lay and professional audiences		
d2-	Apply key ethical issues to the conduct of epidemiological and other scientific investigations		

IV. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	Syllabus Reading & Knowing each other Historical Development - Basic principles of Epidemiology	a1, a2, b1, b2, c1, c2	Methods of Epidemiology Different mode of transmission of infection	1	2
2	General Health and Population Indicators - Measures of morbidity & mortality	a1, a2, b1, b2, c1, c2	Patterns of disease occurrence, animals at risk, mortality rate and case fatality	1	2
3	Infectious Disease Epidemiology	a1, a2, b1, b2, c1, c2	Cause of disease, epidemic, incubation period, endemic, pandemic, susceptibility, types of contact	1	2
4	a. Cross-Sectional & Ecologic studies b. Data Sources & Secondary Analyses	a1, a2, b1, b2, c1, c2	Ways by which air-borne pathogens can arrive to animal bodies, carriers, infestation, reservoir, vectors, incidence, prevalence	2	4
5	**Exam 1** Cohort Studies	a1, a2, b1, b2, c1, c2	Continuity of infectious disease Controls, specificity and sensitivity	1	2
6	Hypothesis Testing & Significance	a1, a2, b1, b2, c1, c2	Precautionary measures which should be taken by Vet authorities for competing infectious and contagious diseases.	1	2
7	Selection and Information Bias & Confounding	a1, a2, b1, b2, c1, c2		1	2
8	Causation & Risk	a1, a2, b1, b2, c1, c2	Burial is a practical method of a proper disposal way of a carcasses of animals dies of contagious diseases.	1	2

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9	Sampling Strategies & Descriptive Studies (Ecological, Cross Sectional, and Qualitative)	a1, a2, b1, b2, c1, c2	Records and its contents which advise to keep in a farm to get useful information about animals in the farm	1	2
10	Case Control & Nested Case Control Studies	a1, a2, b1, b2, c1, c2	1. Movements play an important role in transmission, dissemination of diseases, incineration as an efficient way of carcass disposal 2. Quarantine regulation requirements for importation of animals for breeding purposes.	1	2
11	Intervention Studies	a1, a2, b1, b2, c1, c2		1	2
12	Screening Effect Modification - Causal inference	a1, a2, b1, b2, c1, c2	Organization of surveys, test and questionnaire, efficiency of testing Steps required to solve un-epidemiological problems	1	2
13	Part I: Environmental Epi Part II: Genetic & Molecular Epi	a1, a2, b1, b2, c1, c2	Determinants associated with host agents, and environment Susceptible infestation mutation	1	2
Number of Weeks /and Units Per Semester				**14**	**28**

b- Training Aspect:

Order	Training Tasks	CILOs (symbols)	Number of weeks	Contact hours
1	Sampling	a1, a2, b1, b2, c1, c2	1	2

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2	Septum Technique for TB tests	a1, a2, b1, b2, c1, c2	1	2
3	Urine Sample Test	a1, a2, b1, b2, c1, c2	1	2
4	Faeces Sample	a1, a2, b1, b2, c1, c2	1	2
5	Blood Sample Test	a1, a2, b1, b2, c1, c2	1	2
6	Sample Collected from different diseases Abortion, actinomycosis, actinobacillosis, African horse sickness, anthrax, blue tongue, brucellosis	a1, a2, b1, b2, c1, c2	2	4
7	Chemical Analysis of Water	a1, a2, b1, b2, c1, c2	1	2
8	Examination of Water	a1, a2, b1, b2, c1, c2	1	2
9	Physical Examination of Water	a1, a2, b1, b2, c1, c2	1	2
10	Field Work 1: the Provision of Epidemiolocal Data	a1, a2, a4, b1, b3, c1, c3	1	2
11	Field Work 2: the Provision of Epidemiolocal Data	a1, a2, b1, b2, c1, c2	1	2
12	Collection of Data for Contagious Diseases Studies of disease occurrence. I: Identification of the population	a1, a2, b1, b2, c1, c2	2	4
Number of Weeks /and Units Per Semester			**14**	**28**

V. Teaching strategies of the course:

- Lectures
- Group discussions
- Literature Review
- Brainstorming
- Practical Seminars

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- Individual assignments

3-Assessment Methods:

- The written test
- Short tests (Quizzes)
- Oral tests
- Evaluation of reports
- Assignments (Homeworks)
- Projects
- Presentations

Grading Scale:

Grades are awarded on a scale from A to F, where A is the best grade (91-100) and F is a fail (<50).

N.B.:

1. Any student who pass the 25% of the class attendance will not be allowed for the final exam.
2. Students are advised to study hard in the class during the semester.
3. Retaking an exam is not allowed without valid excuse.

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes (CILOs symbols)

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1	**Participation, quizzes and assignments**	**2-14**	**10**	10%	a-d
2	**Mid-semester exam**	**8**	**10**	10%	a-d
3	**Mid-Term Practical Exam**	**8**	**10**	10%	a-d
4	**Final Practical Exam**	**16**	**10**	10%	a-d
5	**Final Oral Exam**	**16**	**5**	5%	a-d
6	**Final Written Exam**	**16**	**55**	55%	a-d
	Total		**100**	**100%**	

VII. Students' Support:

Office Hours/week	Other Procedures (if any)
Saturday-Wednesday from 8:00 a.m.-9:00 a.m.	Students can contact me via email

VIII. Learning Resource (MLA style or APA style)s:

1- Required Textbook(s) (maximum two)

1. Gordis, L. (2004). *Epidemiology*. Third edition. Philadelphia: Elsevier Saunders. (The second edition is also acceptable.)
2. Pagano, M. and Gauvreau, K. (2000). *Principles of Biostatistics.* Belmont, CA: Wadsworth.
3. Rothman KJ. Epidemiology: An Introduction. New York, NY. Gordis L. Epidemology, 3rd Ed. Philadelphia, PA. Elsevier Saunders: 2004

2- Recommended Readings and Reference Materials

1-

3- Essential References

4- Electronic Materials and Web Sites *etc*.

PubMed https://www.ncbi.nlm.nih.gov/pubmed/

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	Students are free to search online for any available course materials related to the course subjects and taught lectures in the class.
5-	**Other Learning Material:**

X.	**Course Policies:**
1	**Class Attendance:** MANDATORY TO ATTEND ALL COURSE LECTURES AND LABS
2	**Tardiness:** Not allowed at all. Students must be in class or in the practical session 10 minutes prior to the beginning of lectures or practical session.
3	**Exam Attendance/Punctuality:** Attendance is mandatory; absence is accepted with valid excuse. Students must be on time and tardiness is not permissible.
4	**Assignments & Projects:** All assignments and projects are to be submitted on their due date. Any assignment turned in after the due date will not be accepted without valid and reasonable excuse.
5	**Cheating:** Not tolerated and may lead to **EXPELLING** the student from the program
6	**Plagiarism:** Not tolerated **AT ALL** and may lead to **EXPELLING** the student from the program
7	**Other policies:** 1. All devices must be on silent or at least on vibration during lectures/labs 2. Before any exam (written, oral) student's identity will be checked (student's card, ID, passport). Without any of these documents, the student will not be allowed in the exam room. 3. Any of type/ form of cheating is not allowed no matter what. 4. Maintain silence during lectures/exam and disturbance is not allowed. For any questions students should raise their hand and wait for permission to talk.

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Course Plan of Epidemiology and Public Health

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

		Office Hours					
Name of Faculty Member	Dr. Hussein Abdulhadi Al-Wadei	**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**
Location & Telephone No.	Faculty of Veterinary Medicine Building						
E-mail	haalwadei@gmail.com	8am 9am	8am 9am	8am 9am	8am 9am	8am 9am	

XI. Course Identification and General Information:

1-	**Course Title:**	Epidemiology and Public Health				
2-	**Course Number & Code:**	IM461				
3-	**Credit hours:**	**C.H**				**Total**
		Th.	**Seminar**	**Pr.**	**F. Tr.**	
		2	-	1	-	3
4-	**Study level/year at which this course is offered:**	First Semester of Fourth Year				
5-	**Pre –requisite (if any):**	MI353, MI355, MI357				
6-	**Co –requisite (if any):**	None				
7-	**Program (s) in which the course is offered**	Veterinary Medicine				
8-	**Language of teaching the course:**	English				
9-	**System of Study:**	Regular / Semester				
10-	**Mode of delivery:**	Lectures & Practical				
11-	**Location of teaching the course:**	Faculty of Veterinary Medicine Building				

II. Course Description:

Epidemiology is the basic science of public health which introduces the basic principles and methods with an emphasis on the critical thinking analytical skills and application to clinical practice and research. This course gives students a foundation in the basic concepts of epidemiology. Students will gain knowledge in

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the distribution and causes of health and disease in different human population. Students will also be able to apply the methods to improve disease outcomes. The course will discuss and cover the biological, behavioral, sociocultural and environmental factors associated with the etiology and distribution of health and disease.

II. Intended learning outcomes (ILOs) of the course:

After completing this course, students will be able to:

a1- Identify the impact of bias and confounding in epidemiologic studies and to understand the concepts of screening and testing in a range of health and other settings.

a2- Explain the variety of epidemiologic study designs used to examine the health status of a population and be able to evaluate the strengths and limitations of eachgenetics); and to apply epidemiologic methods to current public health issues.

b1- Evaluate the strengths and limitations of epidemiologic reports

b2- Combine appropriate epidemiological concepts and statistical methods and outline epidemiological measures of disease occurrence, calculate basic measures and describe patterns of disease occurrence.

c1- Apply theories, concepts, methods, and tools of public health data collection, analysis and interpretation that are essential to public health practice

c2- Express of routine sources of data used in descriptive epidemiology, and appreciate their strengths and limitations.

d1- Communicate epidemiologic information to lay and professional audiences

d2- Apply key ethical issues to the conduct of epidemiological and other scientific investigations

V. Course Content:

A – Theoretical Aspect:

Order	Topics List	Week Due	Contact Hours
1	Syllabus Reading & Knowing each other Historical Development - Basic principles of Epidemiology	1	2
2	General Health and Population Indicators - Measures of morbidity & mortality	2	2
3	Infectious Disease Epidemiology	3	2
4	a. Cross-Sectional & Ecologic studies b. Data Sources & Secondary Analyses	4	2
5	**Exam 1** Cohort Studies	5	2
6	Hypothesis Testing & Significance	6	2
7	Selection and Information Bias & Confounding	7	2
8	**Midterm Exam**	8	2
9	Causation & Risk	9	2
10	Sampling Strategies & Descriptive Studies (Ecological, Cross Sectional, and Qualitative)	10	2
11	Case Control & Nested Case Control Studies	11	2
12	Intervention Studies	12	2
13	Screening	13	2
14	Part I: Environmental Epi Part II: Genetic & Molecular Epi	14	2
15	Effect Modification - Causal inference	15	2
16	**Final Exam**	16	2

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Number of Weeks /and Units Per Semester	**16**	**32**

b- Training Aspect:

Order	Training Tasks	Week Due	Contact hours
1	Sampling	1	2
2	Septum Technique for TB tests	2	2
3	Urine Sample Test	3	2
4	Faeces Sample	4	2
5	Blood Sample Test	5	2
6	Sample Collected from different diseases Abortion, actinomycosis, actinobacillosis, African horse sickness, anthrax, blue tongue, brucellosis	6,7	4
7	**Midterm Exam**	8	2
8	Chemical Analysis of Water	9	2
9	Examination of Water	10	2
10	Physical Examination of Water	11	2
11	Field Work 1: the Provision of Epidemiolocal Data	12	2
12	Field Work 2: the Provision of Epidemiolocal Data	13	2
13	Collection of Data for Contagious Diseases Studies of disease occurrence. I: Identification of the population	14,15	4
15	**Final Exam**	16	2
Number of Weeks /and Units Per Semester		**16**	**32**

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V. Teaching strategies of the course:

- Lectures
- Group discussions
- Literature Review
- Brainstorming
- Practical Seminars

VI. Assessment Methods:

- The written test
- Short tests (Quizzes)
- Oral tests
- Grading of each laboratory report
- Assignments (Homeworks)
- Projects
- Presentations

Grading Scale:

Grades are awarded on a scale from A to F, where A is the best grade(91-100) and F is a fail (<50)

N.B.:

1. Any student who pass the 25% of the class attendance will not be allowed for the final exam.
2. Students are advised to study hard in the class during the semester.
3. Retaking an exam is not allowed without valid excuse.

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No.	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	**Participation, quizzes and assignments**	**2-14**	**10**	10%
2	**Mid-semester exam**	**8**	**10**	10%
3	**Mid-Term Practical Exam**	**8**	**10**	10%
4	**Final Practical Exam**	**16**	**10**	10%
5	**Final Oral Exam**	**16**	**5**	5%
6	**Final Written Exam**	**16**	**55**	55%
	Total		**100**	**100%**

II. Learning Resources:

•

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

1. Gordis, L. (2004). *Epidemiology*. Third edition. Philadelphia: Elsevier Saunders. (The second edition is also acceptable.)
2. Pagano, M. and Gauvreau, K. (2000). *Principles of Biostatistics.* Belmont, CA: Wadsworth.
3. Rothman KJ. Epidemiology: An Introduction. New York, NY. Gordis L. Epidemology, 3rd Ed. Philadelphia, PA. Elsevier Saunders: 2004

2- Essential References.

3- Electronic Materials and Web Sites *etc*.

PubMed https://www.ncbi.nlm.nih.gov/pubmed/

II. Course Policies:

1	**Class Attendance:** MANDATORY TO ATTEND ALL COURSE LECTURES

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2	**Tardy:** Not allowed at all. Students must be in class 10 minutes prior to the beginning of lectures
3	**Exam Attendance/Punctuality:** Attendance is mandatory; absence is accepted with valid excuse. Students must be on time and tardiness is not permissible.
4	**Assignments & Projects**: All assignments and projects are to be submitted on their due date. Any assignment turned in after the due date will not be accepted without valid and reasonable excuse.
5	**Cheating**: Not tolerated and may lead to **EXPELLING** the student from the program
6	**Plagiarism**: Not tolerated **AT ALL** and may lead to **EXPELLING** the student from the program
7	**Other policies**: 1. All devices must be on silent or at least on vibration during lectures/labs. 2. Before any exam (written, practical, oral) student's identity will be checked (student's card, ID, passport). Without any of these documents, the student will not be allowed in the exam room. 3. Any of type/ form of cheating is not allowed no matter what. **4.** Maintain silence during lectures and disturbance is not allowed.

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