Specification for Animal, poultry, fish Hygiene and Environment (A)

2025/2026

1-Basic information

Course title	Animal , poultry, fish Hygiene and Environment (A)							
Course code	**HVC.415**							
Department/s participating in delivery of the course	veterinary hygiene and management							
Number of units/credit hours	**Theoretical**	**1**	**Practical**	**1(2)**	**Other**	**0**	**Total**	**2(3)**
Course Type	√ **Obligatory** **Elective**							
Academic level at which the course is taught	4th year							
Semester	Fall							
Academic program	Bachelor of Veterinary Medicine (BVM)							
Faculty	Veterinary medicine							
University	Benha University							
Name of course coordinator	Prof. Dr. Yasser Metawea							
Course Specification Approval Date	Department council on 8/7/2024							
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	Faculty council on 27/8/2025							

2-Course overview

- **Course contents written in the program bylaw:**

Water (resources, pollution, improvement, treatment, hygienic requirement, water quality standard); Air (Requirements, pollution, macro and microclimate, air born infection, ventilation) ; soil (typs, pollution and prevention, soil born infection); Animal and poultry housing.

3- Course Learning Outcomes CLOs

	(NARS) outcomes		Course outcomes	
	Code	**Text**	**Code**	**Text**
Knowledge and	**2.9**	General and specific epidemiological pattern of animal population diseases and the most effective immunization protocols	**a1**	Describe and illustrate different types of animal housing
			a2	Mention the general principles for designing dairy, beef, sheep, goat and horse farms.
			a3	List and explain different ventilation

understanding				systems used for different types of animal housing
			a4	Mention different methods for hygienic disposal of animal manure.
			a5	Define and classify air, water and soil pollutants and their influence on animal health.
			a6	Identify general and specific epidemiology pattern of animal population diseases and the most effective immunization protocols.
	2.12	The accurate measurements of veterinary quarantine	**a7**	Describe the accurate measurement of veterinary quarantine
Intellectual skills	**4.2**	Assess and criticize, at the fundamental level, how data are derived.	**b1**	Choose the appropriate system of housing and design according to type of production and environmental requirements
			b2	Plan a general layout of commercial animal farms
			b3	Interpret different types of pollutants in air, drinking water and soil inside and outside the animal building.
			b4	Compare between different methods for collection, treatment and disposal of animal manure and choose the suitable method for different animal premises
Professional and practical skills	**3.11**	Utilize appropriate safety procedures to protect clients and co-workers.	**c1**	Utilize appropriate safety procedures to protect clients and co-workers.
	3.12	Correctly deal with procedures related to food hygiene, public health issues, notifiable diseases and disposal of animal wastes	**c2**	Take representative samples from air, water source and soil for laboratory examination.
			c3	Perform simple chemical tests to judge air and water quality.
			c4	Employ all the gained knowledge and understanding in clinical practice in a skillful pattern.
			c5	Safely, correctly and humanely restrain animals for examination.
			c6	obtain the history of the case whether it is of an individual animal or a group of animals
			c7	Conduct evidence based problems solving of field presented problems tasks.
			c8	Provide emergency care to all species of

				animals.
			c9	Correctly deal with procedure related to public health issues, notifiable diseases and disposal of animal wastes.
	3.13	Minimize the risk of contamination, cross infection and predisposing factors of diseases.	**c10**	minimize the risk of contamination, cross infection and predisposing factors
General and transferable skills	**5.1**	Work under pressure and / or contradictory conditions	**d1**	Work under pressure during Animal , poultry, fish Hygiene and Environment lab session.
	5.2	Function in a multidisciplinary team	**d2**	Work in a team during the diagnosis process.
	5.3	Communicate appropriately verbally and nonverbally	**d3**	Communicate & Cooperate with other colleagues for reaching diagnosis.
	5.4	Organize and control tasks and resources.	**d4**	Manipulate and organize tasks in the field of Animal, poultry, fish Hygiene and Environment.
	5.5	Search for new information and technology as well as adopt life–long self-learning ethics	**d5**	Search for new information in the field of Animal, poultry, fish Hygiene and Environment.

4- Teaching and learning methods					
Lectures	√	**Discussion & seminar (self-learning)**	√	**Practical**	√
Presentation & movies	√	**Problem solving**	√	**Brain storming**	√
Others	**Field training**				

- Course Schedule:

Number of the Week	**Scientific content of the course (Course Topics)**	**Total Weekly Hours**	**Expected number of the Learning Hours**			
			Theoretical teaching (lectures/discussion groups/ .....)	**Training (Practical/Clinical / .....)**	**Self-learning (Tasks/ Assignments/ Projects/ ...)**	**Other (to be determined)**
W1	General requirements for animal housing	**2(3)**	**1**	**1(2)**		**0**
W2	Ventilation & soil	**2(3)**	**1**	**1(2)**		**0**
W3	-Housing of dairy herds & beef cattle	**2(3)**	**1**	**1(2)**	**Formative quiz(self-**	**0**

					learning)	
W4	Housing of sheep & goat	**2(3)**	**1**	**1(2)**		**0**
W5	Housing of horse	**2(3)**	**1**	**1(2)**		**0**
W6	Design of animal farms &Biosecurity	**2(3)**	**1**	**1(2)**	**Formative quiz(self-learning)**	**0**
W7	**Semester works (one hour exam)**					
W8	Environmental Hygiene	**2(3)**	**1**	**1(2)**		**0**
W9	Normal constituents of air	**2(3)**	**2**	**1(2)**		**0**
W10	Chemical & Biological pollutants and animal health	**2(3)**	**1**	**1(2)**	**Formative quiz(self-learning)**	**0**
W11	Temperature, humidity, air movement and solar radiation	**2(3)**	**1**	**1(2)**		**0**
W12	Normal constituents & Sources of drinking water	**2(3)**	**1**	**1(2)**		**0**
W13	Chemical pollutants and animal health	**2(3)**	**1**	**1(2)**		**0**
W14	-Biological pollutants and water related diseases	**2(3)**	**1**	**1(2)**	**Formative quiz(self-learning)**	**0**
W15	**Practical exam**					

5- Methods of students' assessment

a- Assessment methods (summative and formative)

1. **Formative assessment**: including (weekly quizzes, homework assignments and surveys).
2. **Summative assessment** including (quizzes, class activates, Mid-term exam, practical exam, oral exams and final written exams).

b- Assessment schedule and weight

Assessment method	Assessment Timing (Week Number)	Marks/ Scores	Percent
Semester work including one hour exam	7^{th} week	10	10%
Assignments / Project /Portfolio/ Logbook	Throughout semester		
Field training			
Formative assessment	Throughout semester	-	-

Practical exam	15th week	30	30%
oral exam	End of semester	10	10%
Written exam	End of semester	50	50%
Total		100	100%

6- Learning resources and supportive facilities:

Learning resources	Main reference	**Student handbook**: A concise guide of animal and poultry hygiene edited by staff members Edit by Staff members
	Essential books (textbooks)	• Andres Aland (2013) Livestock Housing • P.K. Goel. (2009) Water Pollution • Frank R. Theroux (2008) laboratory manual for chemical and bacterial analysis of water and sewage
	Periodicals, Web sites, . . . etc	• Veterinary Records. • Benha veterinary medical journal • www.OIE.int.org • www.WHO.int.org • www.cdc.org • www.ekb.eg
	Learning platform	Thinqi
Supportive facilities	Devices & instruments	**Devices** • microscope • PH meter • Autoclave • Hot air oven • Vortex mixer • Distiller • Centrifuge • Sterilization oven • Water bath • Anometer • Thermo-hygrometer
		• Teaching hall (Data show and White board) • Equipped Department laboratory (Instruments used for air sampling and detection of some pollutants, in addition to those used for determination of air temperature, humidity and air velocity) • Farm animal education • Laboratory animal unit.

Matrices:

A- Content and ILOs matrix:

Topic	A) Knowledge and understanding	B) Intellectual skills	C) Professional and practical skills	D) General and transferable skills
1-General requirements for animal housing	a1, a2, a3, a4, a5, a6	-	-	d1
2-Ventilation	a1, a2, a3, a4, a5, a6	b1, b2, b3,b4,	c1,c2	d2 ,d3,d4
3-soil	a1, a2, a3, a4, a5, a6	b1, b2, b3,b4,	c1,c2,c3,c4,c5,c6,c7 ,c8,c9,c10,c11	d2 ,d3,d4
4-Housing of dairy herds	a1, a2, a3, a4, a5, a6	b1, b2, b3,b4	c1,c2,c3,c4,c5,c6,c7 ,c8,c9,c10	d2 ,d3,d4
5-Housing of beef cattle	a1, a2, a3, a4, a5, a6	b1, b2, b3,b4	c5,c6,c7,c8,c9,c10	d2 ,d3,d4,d5
6-Housing of sheep	a1, a2, a3, a4, a5, a6	b1, b2, b3,b4	c1,c2,c3,c4,c5,c6,c7 ,c8,c9,c10	d2 ,d3,d4,d5
7-Housing of goat	a1, a2, a3, a4, a5, a7	b1, b2, b3,b4	c1,c2,c3,c4,c5,c6,c7 ,c8,c9,c10	d2 ,d3,d4,d5
8-Housing of horse	a1, a2, a3, a4, a5, a7	b1, b2, b3,b4	c1,c2,c3,c4,c5,c6,c7 ,c8,c9,c10	d2 ,d3,d4,d5
9-Biosecurity (general)	a1, a2, a3, a4, a5, a6	b3,b4	c3,c4	d2 ,d3,d4,d5
10-Design of animal farms	a1, a2, a3, a4, a5, a7	b3,b4	-	d2 ,d3,d4,d5
11-Normal constituents of air	a3, a5	b3,b4	c3,c4,c5,c6	d2 ,d3,d4,d5
12-Chemical pollutants and animal health	a3, a5	b3,b4	c3,c4,c5,c6,	d2 ,d3,d4,d5
13-Biological pollutants and animal health	a3, a5	b3,b4	c3,c4,c5,c6,	d2 ,d3,d4,d5
14-Temperature, humidity, air movement and solar radiation	a3, a5	b3,b4	c3,c4,c5,c6,	d2 ,d3,d4,d5
15-Normal constituents of drinking water	a3, a5	b3,b4	c3,c4,c5,c6	d2 ,d3,d4,d5
16-Sources of drinking water	a3, a5	b3,b4	c3,c4,c5,c6	d2 ,d3,d4,d5
17-Chemical pollutants and animal health	a3, a4, a5	b3,b4	c3,c4,c5,c6	d2 ,d3,d4,d5

18-Biological pollutants and water related diseases	a3, a4, a5	b3,b4	c3,c4,c5,c6	d2 ,d3,d4,d5
19-Treatment of water hardness	a4, a5, a6	b3,b4	c7,c8,c9,c10	d2 ,d3,d4,d5
20-Water sanitizers and treatment of drinking water	a4, a5, a6	b4	c7,c8,c9,c10	d2 ,d3,d4,d5
21-Treatment of animal manure	a4, a5, a6	b4	c7,c8,c9,c10	d2 ,d3,d4,d5

B- Teaching and learning methods and ILOs matrix:

ILOs		Teaching and Learning method						
		L	P&M	D&s	P(TPL)	Ps	Bs	FTP
Knowledge and understanding	a1	√	√	√		√	√	
	a2	√	√	√		√	√	
	a3	√	√	√		√	√	
	a4	√	√	√		√	√	
	a5	√	√	√		√	√	
	a6	√	√	√		√	√	
	a7	√	√	√		√	√	
Intellectual skills	b1	√		√				√
	b2	√		√				√
	b3	√		√				√
	b4	√		√				√
Professional and practical skills	c1				√		√	√
	c2				√		√	√
	c3				√		√	√
	c4				√		√	√
	c5				√		√	√
	c6				√		√	√
	c7				√		√	√
	c8				√		√	√
	c9				√		√	√
	c10				√		√	√
General skills	d1							√
	d2						√	√
	d3						√	√
	d4		√	√	√	√		
	d5		√	√	√	√		

L: Lecture**, P&M:** Presentations & Movies**, D&S:** Discussions & Seminars (self-learning), **P(TPL):** Practical, **Ps:** Problem solving, **Bs:** Brain storming**, FTP:** field trip, Training, Project

C- Assessment methods and ILOs matrix:

ILOs		Assessment method				
		Formative assessment	Semester work (one hour exam)	Oral	Practical	Written
Knowledge and understanding	a1	√	√	√		√
	a2	√	√	√		√
	a3	√	√	√		√
	a4	√	√	√		√
	a5	√	√	√		√
	a6	√	√	√		√
	a7	√	√	√		√
Intellectual skills	b1	√	√	√		√
	b2	√	√	√		√
	b3	√	√	√		√
	b4	√	√	√		√
Professional and practical skills	c1				√	
	c2				√	
	c3				√	
	c4				√	
	c5				√	
	c6				√	
	c7				√	
	c8				√	
	c9				√	
	c10				√	
General skills	d1	√	√			
	d2	√	√			
	d3	√	√	√		
	d4	√	√			
	d5	√	√			

Name and Signature Course Coordinator	Name and Signature Program Coordinator
Prof. dr. Yasser Metawea	**Prof. Dr. Mahmoud Abouelroos**