Physiological Changes Associated with Pollution (629P)

PhD COURSE SPECIFICATION

A. BASIC INFORMATION

University:	**University of Sadat City**
Faculty:	**Veterinary Medicine**
Program on which the course is given:	**PhD in Veterinary Medical Sciences (physiology)**
Department offering the Course:	**Physiology**
Course code:	**629P**
Course title:	**Physiological Changes Associated with Pollution**
Lecture (hr/week):	**1**
Practical (hr/week):	**2**
Course coordinator:	**Prof. Dr. Said I. Fathalla**

B. PROFESSIONAL INFORMATION

1) Overall aims of course

Distinguish basic and advanced knowledge and skills in details on causes and types of pollution, associated physiological changes and scheme of defenses to avoid alterations of animal productivity and reproductivity.

2) Intended learning outcomes of course (ILOs)

a) KNOWLEDGE AND UNDERSTANDING

By the end of this course, the graduate should be able to:-

a.1. Recognize the major pollutants: sources, health effects, and prevalence

a.2. Describe effects associated with chemical and trace element contamination on fish physiological parameters

a.3. Describe the behavioral reactions by fish to the presence of petroleum in the water appear

a.4. Clarify the cardiopulmonary disease linked to breathing fine particles of air pollution

a.5. Express the impact of air pollution on maternal and prenatal health.

a.6. Recognize the mode of actions of insecticides and pesticide.

a.7. Confer distinction upon impact of insecticides and pesticide on body physiological parameters
a.8. Illuminate effects of noise on wildlife.
a.9. Express impact of noise pollution and hassle on the physiology of nervous system.

INTELLECTUAL SKILLS

By the end of this course, the student should be able to:-

b.1.Confirm the impacts of pollution on breeding.
b.2. Distinguish the reference values of soundness of physiological system functions to give the chance to diagnose normal and abnormal body system due to different types of pollution.

PROFESSIONAL AND PRACTICAL SKILLS

By the end of this course, the student should be able to:-

c.1 Apply methods for body fluids samples from different animal species.
c.2. Analyze samples to environmental adaptation.
c.3. Analyze samples to environmental adaptation.
c.4. Asses the phagocytic activity and plasma proteins due to pollutants.
c.5. Illustrate the chemical and trace element contamination on fish blood parameters.

b) GENERAL AND TRANSFERABLE SKILL

By the end of this course, the student should be able to:-

d.1. Incorporate in team work effectively.
d.2. Confer distinction upon the essential ethical issues involved in scientific research.
d.3. Network for new information and technologies.
d.4. Specify the available presentation aids (e.g. Projectors or Data Show) to present

clearly and effectively a scientific topic in a tutorial, a staff meeting or the yearly scientific day.

3) Topics and contents

Topic	No. of hours		
	Lect.	Pract.	Total
Major pollutants: sources, health effects, and prevalence	6	-	6
Effects associated with chemical and trace element contamination on fish physiological parameters	6	-	6
Behavioral reactions by marine mammals to the presence of petroleum in the water appear	6	-	6
Cardiopulmonary disease linked to breathing fine particles of air pollution.	6	-	6
Impact of air pollution on maternal and prenatal Health.	6	-	6
Mode of actions of insecticides and pesticide.	6	-	6
Impact of Insecticides and pesticide on body physiological parameters	6	-	6
Effects of noise on wildlife	2	-	2
Apply methods for body fluids sampling from different animal species.	-	10	10
Analyze samples to environmental adaptation	-	10	10
Assay of phagocytic activity and plasma proteins due to pollutants	-	20	20
Effect of insecticides and pesticide on reproductive parameters	-	30	30
Effect of chemical and trace element contamination on fish blood parameters	-	18	18
Total hours	**44**	**88**	**132**

4) Teaching and learning methods

    a. Lectures.
    b. Practical.
    c. Self-learning activities.

d. Student assessment

  a. METHODS:

    Ñ   Written exam to assess knowledge, information and intellectual skills.
    Ñ   Practical exam to assess professional and practical skills.
    Ñ   Oral exam to assess knowledge and information and intellectual skills.
    Ñ   Student activities for assessing knowledge and general and transferable skills.

b. MATRIX ALIGNMENT OF THE MEASURED ILOS/ ASSESSMENTS METHODS:

	K.U (a)	I.S (b)	P.P.S (c)	G.S (d)
Written exam	1,2,3,4,5,6,7,8,9	1,2		
Practical exam		1,2	1,2,3,4,5	
Oral exam	1,2,3,4,5,6,7,8,9	1,2		
Student activities				1-4

c. WEIGHT OF ASSESSMENTS:

Assessment	Allocated Mark	Evidence
Final written exam	**50%**	Marked and signed written paper
Practical exam	**20%**	Marked and signed practical exam paper
Oral exam	**20%**	Signed list of oral exam marks
Student activities	**10%**	Assay, presentations, discussions, review

e. List of references

6.1. Essential textbooks

1-Berne, R.M. & Levy, M.N. (eds) 1996, *Principles of Physiology*, 2nd edition, Mosby, Sydney.

2- **William O. Reece 2004,** Dukes' Physiology of Domestic Animals, 12th edition, Cornell University Press

3- **Textbook of Medical Physiology (Guyton)2010**

4-**Text Book of Veterinary Physiology, Cunningham, Elsevier, 2007.**

5- Keith B. 2013, Fish physiology

6.2. Web sites

- Tropical animal health and production
- Journal of animal science
- J. of applied physiology
- J. of veterinary physiology
- J. of comparative biochemistry & physiology

f. Facilities required for teaching and learning

7.1 Data-show.

7.2 Laboratory animals for experimental physiology.
7.3 Network for technology transfer.
7.4 Laboratory kits for experimental physiology.
7.5 Computer.

	Course coordinators	**Head of department**
Name	Prof. Dr. Said Ibrahim fathalla	Prof. Dr. Shaaban Gadallah
Signature		

Matrix alignment of course topics and ILOs

Topic	No. of hours /week		Total hours Lect.	Hours for Pract.	ILOs			
	Lect.	Pract.			K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Major pollutants: sources, health effects, and prevalence	1		6	-	1	1-2		3,4
Effects associated with chemical and trace element contamination on fish physiological parameters	1		6	-	2	1-2		1,4
Behavioral reactions by marine mammals to the presence of petroleum in the water appear	1		6	-	3	1-2		1,2
Cardiopulmonary disease linked to breathing fine particles of air pollution.	1		6	-	4	1-2		1,3
Impact of air pollution on maternal and prenatal Health.	1		6	-	5	1-2		1,4
Mode of actions of insecticides and pesticide.	1		6	-	6	1-2		1,4
Impact of Insecticides and pesticide on body physiological parameters	1		6	-	7	1-2		1,2

| Topic | No. of hours /week | | Total hours Lect. | Hours for Pract. | ILOs | | | |
	Lect.	Pract.			K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Effects of noise on wildlife	1		2	-	8,9	1-2		1,3
Apply methods for body fluids sampling from different animal species.	1		-	10		1-2	1	1,4
Analyze samples to environmental adaptation		2	-	10		1-2	2	1,2
Assay of phagocytic activity and plasma proteins due to pollutants		2	-	20		1-2	3	1,3
Effect of insecticides and pesticide on reproductive parameters		2	-	30		1-2	4	1,4
Effect of chemical and trace element contamination on fish blood parameters		2	-	18		1-2	5	1,2