



University of Sadat City
Faculty of Veterinary Medicine
Dept. of Physiology
(2014-2015)



Nerve and Muscle Physiology (624P)

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:	624P
Course title:	Nerve and Muscle Physiology
Lecture (hr/week):	2
Practical (hr/week):	2
Course coordinator:	Prof. Dr. Said Ibrahim Fathalla

B. PROFESSIONAL INFORMATION

1) Overall aims of course

Identify basic and advanced knowledge and skills of nerve and muscle physiology.

2) Intended learning outcomes of course (ILOs)

a) KNOWLEDGE AND UNDERSTANDING

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

- a1. Define Resting membrane potential.
- a2. Describe Properties of nerve tissue.
- a3. Identify Nerve action potential, action potential transmission.
- a4. Recognize changes accompanying the propagation of nerve impulses.
- a5. Define Mechanism of nerve impulses conduction.
- a6. Identify Comparison of muscle features.
- a7. Describe skeletal muscle ultra-structure.
- a8. Realize Theories of muscle contraction.
- a9. Recognize of changes accompanying muscle contraction.
- a10. Identify Factors influencing simple muscle twitch.

b) INTELLECTUAL SKILLS

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

- b.1. Interpret reflex action of nerve.
- b.2. Assess the effect of different stimuli on muscle and nerve.
- b.3. Judge electromyography.

c) PROFESSIONAL AND PRACTICAL SKILLS

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

- c.1. Perform Muscle and nerve preparation.
- c.2. Assess the effect of different stimuli on nerve and muscle.
- c.3. Illustrate electromyography in assessment of different types of muscle contraction.

d) GENERAL AND TRANSFERABLE SKILL

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

- d.1. Communicate effectively.
- d.2. Work in a research team.
- d.3. Present his research results effectively.

3)**Topics and contents**

Topic	No. of hours		
	Lect.	Pract.	Total
Resting membrane potential	4	-	4
Properties of nerve tissues	4	-	4
Nerve action potential, action potential transmission	10	-	10
changes accompanying the propagation of nerve impulses	9	-	9
Mechanism of nerve impulses conduction	7	-	7
Comparison of muscle features	10	-	10
Skeletal muscle ultra-structure	10	-	10
Theories of muscle contraction	10	-	10
changes accompanying muscle contraction	9	-	9
Factors influencing simple muscle twitch	15		15
Muscle and nerve preparation	-	30	30
electromyography	-	30	30
Applying different stimuli on nerve and muscle	-	28	28
Total	88	88	176

4) Teaching and learning methods

- Lectures to gain knowledge and understanding skills.
- Practical sessions for the students to gain practical skills.
- 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	1-10	1,2,3		
Practical exam			1,2,3	
Oral exam	1,2,4,6,7,8,10	1,2,3		
Student activities				1,2,3

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-Gibson, G.G. & Skett, P. 1994, Introduction to Drug Metabolism, 2nd edition, Blackie Academic and Professional, London.

4- Keith B. 2013, Fish physiology

6.3. 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 I. Fathalla	Prof. Dr. Shaaban Gadallah
Signature		

Matrix alignment of course topics and ILOs

Topic	No. of hours /week		Total hours	Total hours for Lect.	Hours for Pract.	ILOs			
	Lect.	Pract.				K.U	I.S	P.P.S	G.T.S
						(a)	(b)	(c)	(d)
Resting membrane potential	2	-	4	4		1			1-2-3
Properties of nerve tissues	2	-	4	4		2			1-2-3
Nerve action potential, action potential transmission	2	-	10	10		3			1-2-3
changes accompanying the propagation of nerve impulses	2	-	9	9		4			1-2-3
Mechanism of nerve impulses conduction	2	-	7	7		5			1-2-3
Comparison of muscle features	2	-	10	10		6			1-2-3
Skeletal muscle ultra-structure	2	-	10	10		7			1-2-3
Theories of muscle contraction	2	-	10	10		8			1-2-3
changes accompanying muscle contraction	2	-	9	9		9			1-2-3
Factors influencing simple muscle twitch	2	-	15	15		10			
Muscle and nerve preparation	-	2	30	-	30		1-3	1	1-2-3
Electromyography	-	2	30	-	30		3	3	1-2-3
Applying different stimuli on nerve and muscle	-	2	28	-	28		2	2	1-2-3
Total			176	88	88				