



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



Fish Physiology (623P)

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:	623P
Course title:	Fish physiology
Lecture (hr/week):	1
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 physiological functions of all Fish body system.

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. Define hormonal action, secretion, regulation, and disorders in fish.
- a.2. Describe digestion in fish in comparison with mammals and birds.
- a.3. Recognize respiration in fish and its regulation and factors affecting it.
- a.4. Identify Osmoregulation and stress in fish and factors affecting it.
- a.5. Describe cardiovascular system in fish in comparison with mammals and birds.
- a.6. Realize reproductive patterns in fish and its hormonal control.
- a.7. Realize of vitellogenesis in fish.
- a.8. Recognize artificial reproduction in fish.
- a.9. Describe nervous system in Fish.

b) INTELLECTUAL SKILLS

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

- b.1. Interpret hormonal assay in fish.
- b.2. Asses the hormonal control of artificial reproduction in fish
- b.3. Interpret hematological findings in fish.
- b.4. Analyze semen samples in fish.
- b.5. Correlate the effect of some environmental factors on fish physiology (respiration and reproduction).

c) PROFESSIONAL AND PRACTICAL SKILLS

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

- c.1. Utilize techniques for Effect of some environmental factors on fish physiology.
- c.2. Asses fish semen samples.
- c.3. Perform steps of artificial reproduction in fish.
- c.4. Asses methods of hormonal assay in fish.
- c.5. Analyze fish blood sample.

d) GENERAL AND TRANSFERABLE SKILL

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

- d.1. Work effectively as a member of a multidisciplinary team,
- d.2. Search for new information and technologies.
- d.3. Use 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
Nervous system in Fish	4	-	4
Endocrine system in fish	5	-	5
Respiration in fish and its regulation and factors affecting it	5	-	5
Digestive system in fish	5	-	5
Cardiovascular system in fish	5	-	5
Osmoregulation in fish	5	-	5
Male reproductive system in fish	7	-	7
Female reproductive system in fish	8	-	8
Semen analysis in fish	-	20	20
Reproductive hormones assay	-	20	20
Fish blood pictures examination	-	18	18
Effect of some environmental factors on fish physiology (respiration and reproduction)	-	10	10
Steps of artificial reproduction of fish	-	20	20
Total	44	88	132

4) Teaching and learning methods

- Lectures.
- Practical sessions for the students to gain practical skills.
- Self-learning activities.

d. Student assessment**a. METHODS:**

- ∑ Written exam to assess knowledge, information and intellectual skills.
- ∑ Practical exam to assess professional and practical skills.
- ∑ Oral exam to assess knowledge and information and intellectual skills.
- ∑ 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	1-9	1,2,3,4,5		
Practical exam			1,2,3,4,5	
Oral exam	1,2,3,5,9	1,2,4		

Student activities				1,2,3
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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-Evans, D.H. 1994, The physiology of fishes, volume 4, number 2, CRC press, Boca Raton, FL.

2-Block, B.A. and Stevens, E.D. 2001, Tuna: Physiology, Ecology, and Evolution, Fish physiology series, volume 19, academic press, San Diego and London.

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

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

6-Keth B. 2013, Fish physiology.

6.3. Web sites

-) J. of aquaculture
-) Aquarium Sciences and Conservation
-) J. of fish biology
-) J. of applied physiology
-) J. of veterinary physiology
- * J. of comparative endocrinology

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
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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 (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Nervous system in Fish	1	-	4	4		9			2, 3
Endocrine system in fish	1	-	5	5		1	1,2		1,2
Respiration in fish and its regulation and factors affecting it	1	-	5	5		३	5		1,2
Digestive system in fish	1	-	5	5		२-			1,3
Cardiovascular system in fish disease	1	-	5	5		5	3		1,2
Osmoregulation in fish	1	-	5	5		4			1,2
Male reproductive system in fish	1	-	7	7		6,7,8	4		1,2
Female reproductive system in fish	1	-	8	8		6,7,8	5		1,3
Semen analysis in fish	-	2	20	-	20		4	2	1,3
Reproductive hormones assay	-	2	20	-	20		1,2,5	4	1,2
Fish blood pictures examination	-	2	18	-	18		3	5	1,3
Effect of some environmental factors on fish physiology (respiration and reproduction)	-	2	10	-	10		5	1	1,3
Steps of artificial reproduction of fish	-	2	20	-	20		2	3	1,2
Total			132	44	88				