Program Title: Master in Veterinary Medical Sciences

(Physiology)

A. ADMINISTRATIVE INFORMATION

University:	**Sadat City**
Faculty:	**Veterinary Medicine**
Program title:	**Master in Veterinary Medical Sciences (Physiology)**
Final award:	**MVSc Degree (Physiology)**
Registration period	**2-4 years. An extension for a maximum of 2 years could be approved.**
Department responsible:	**Physiology**
Program Coordinators	**Prof. Dr. Said I. Fathalla**
External evaluator:	**أ.د/ أحمد أبو العلا محمد أستاذ الفسيولوجيا – طب بيطري – جامعة بنى سويف**

B. PROFESSIONAL INFORMATION

1) Overall aims of program

- To provide the graduates with the advanced veterinary medical knowledge and skills essential for the master of physiology and necessary for further training and practice in the field of physiology. Also, provides graduates the opportunity to develop communication and teaching skills and the experience of scientific research.
- To evolve the ability of graduates to be involved in recent techniques and research tools in the field of physiology.
- To provide the graduates with the most recent knowledge in science and applied physiology.
- To reveal an awareness of the connections between disciplines and to evolve the ability to engage with scientific literature. Also, to review and present their own research data for the promotion of the animal health.
- To permit graduates to develop practical research project.
- To qualify graduates to achieve competency in modern laboratory and practical technology.

2) Academic standards

- Academic reference standards (ARS) adopted by the faculty committee No 152 (18/6/2014).

3) Graduate attributes

Upon successful completion of the program, the graduate has the ability to:

- Apply the gained specific knowledge in professional practice.
- Identify the professional problems and suggest solutions of the focus area.
- Apply and use analytical methods in the area of specialization.
- Apply efficiently the basics and methodologies of scientific research with the use of its different tools.
- Communicate effectively and lead work team through professional scale.
- Make decision under different professional situations
- Use of the available resources efficiently
- Be aware with the ongoing problems and modern concepts in the area of specialization.
- Be aware with his role in society development and community preservation.
- Reflect the commitment to act with integrity, credibility, and the rules of profession
- Realize the importance of self and life-long learning and progress.
- Master an appropriate domain in specialized professional skills and use modern

technology to serve professional practice.

4) Intended learning outcomes of course (ILOs)

a) Knowledge and understanding

By the end of this program the graduate should be able to:

a.1. Describe the normal basic physiological standards of different animals and related fields .

a.2. Identify the basic laboratory regulations and recognize its impacts on the adjacent environment

a.3. Realize with modern applied methodologies in the field of physiology.

a.4. Realize the legal and ethical basics in the field of laboratory safety.

a.5. Be aware with the principles and basics of quality assurance in the area of practical physiology.

a.6. Recognize the basics and ethics of research on animal model at physiology lab.

b) Intellectual skills

By the end of this program the graduate should be able to:

b.1. Interpret the information about different biological functions and correlate between different systems in animal body.

b.2. Find clues for problems in physiology even in scarcity of resources via Contact with professional experts.

b.3. Relate between different knowledge to solve professional problems in physiology field.

b.4. Participate in preparing research plan in in physiology and/ or write scientific article on a research problem.

b.5. interpret recent physiological research areas and correlate between them..

b.6. Plan for improvement of professional performance.

b.7. Make professional decisions in a variety of professional contexts with the ability to meet new challenges.

c) Professional and practical skills

By the end of this program the graduate should be able to:

c.1. Master basic and recent professional skills in endocrinology, animal reproduction, hematology, immunology, digestion and metabolism, neurology, musculoskeletal system and other physiology branches.

c.2. Evaluate existing materials and methods in the area of experimental physiology and analysis to their own research project and evaluating physiological reports.

c.3. Perform experiments in physiology and analyze different methods and correlate between them.

c.4. Write, conclude and evaluate a professional and conclusive report about experimental animals in research design.

d) General and transferable skill

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

d.1. Communicate effectively with his professors, collages and animal owner(s).
d.2. Utilize different sources of knowledge and information.
d.3. Set tools and indicators for education and assessment of the self-performance.
d.4. Use information technology to serve the professional practice.
d.5. Demonstrate an ability to learn independently for a career of lifelong learning.
d.6. Demonstrate interpersonal skills and team working ability.
d.7. Manage time efficiently.
d.8. Assess himself and identify his personal educational needs.

5) Program structure:

a) Premaster courses – at least one academic year

	Lecture (hours/week)	Practical (hours/week)
Fundamental (core) course	3	4
Research methodology	1	3
3-4 Elective Courses (10-12 hours)	Offered by other departments and are selected from the list below according to thesis topic	

b) MVSc Thesis (at least one academic year)

- All master-degree students should prepare a master thesis.
- The department and the ethical committees must approve the protocol of the research.
- The thesis should include a review part and a research part.
- The thesis is supervised by one or more senior staff members of the department responsible for the program and may include other specialties according to the nature of the research.
- The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

Elective Courses for master students				
Code	**Course**	**Hours/week**		**Department**
		Lecture	**Practical**	
601	Applied anatomy	2	2	**Anatomy & Embryology**
602	Arterial & nerve supply, and surface anatomy	2	2	
603	Osteology and arthrology	2	2	
604	Comparative digestive system	2	2	
605	Comparative urogenital system	2	2	
606	Comparative respiratory System	2	2	
607	Comparative cardiovascular system, lymphatic system and heart	2	2	
608	Comparative nervous system and endocrine glands	2	2	

609	General and special embryology	2	2	
610	Avian anatomy	1	2	
611	Cytology and cytochemistry	2	2	**Cytology and histology**
612	General histology	2	2	
613	Histological and histochemical structure of blood, lymphatic & cardiovascular systems and heart	2	2	
614	Histological and histochemical structure of respiratory system	2	2	
615	Histological and histochemical structure of digestive system	2	2	
616	Histological and histochemical structure of urogenital system	2	2	
617	Histological and histochemical structure of nervous system and endocrine glands	2	2	
618	Histological and histochemical structure of integument, hoof, claws and nails	2	2	
619	Avian histology	2	2	
620	Circulatory and immune systems	2	2	
				Physiology
631	Biochemistry (advanced)	2	2	**Biochemistry and Chemistry of Nutrition**
632	Metabolism	1	2	
633	Biochemistry of tissues and body fluids	2	2	
634	Biochemistry of hormones and reproduction	2	2	
635	Chemistry of nutrition	2	2	
636	Clinical biochemistry	2	2	
637	Avian biochemistry	2	2	
638	Fish biochemistry	2	2	
639	Microbial biochemistry and biotechnology	2	2	
640	Radiation biochemistry	1	2	
641	Behaviour and management of ruminants	2	3	**Husbandry and Animal Wealth Development**
642	Behaviour and management of equines	2	3	
643	Pet animals behaviour and management	1	2	
644	Laboratory animals behaviour and management	1	2	
645	Wild animals and birds behaviour and management	2	2	
646	Birds and rabbit behaviour and management	2	2	
649	Advanced Animal nutrition	2	2	**Nutrition and Clinical Nutrition**
650	Feed stuffs (components and additives)	2	2	
651	Farm animals and fish nutrition	2	2	
652	Birds and rabbit nutrition	2	2	
653	Nutrition of wild animals	1	2	
654	Laboratory animal Nutrition	1	2	
655	Feed stuff analysis	2	2	
656	Feeds and feed industry hygiene	2	2	
657	Clinical nutrition	2	2	

659	General pathology and oncology (advanced)	2	2	**Pathology**
660	Pathology of microbial and parasitic animal diseases	2	2	
661	Pathology of nutritional deficiencies	1	2	
662	Environmental pathology	1	2	
663	Pathology of reproduction	1	2	
664	Pathology of poultry	2	2	
665	Fish pathology	1	2	
666	Experimental Pathology	1	2	
667	Toxicological pathology	2	2	
668	Surgical pathology	2	2	
669	Clinical pathology (advanced)	2	2	**Clinical Pathology**
670	Evaluation of organ functions, body fluids balance and urine	2	2	
671	Diagnosis of hematological disorders and bone marrow investigation	1	2	
672	General bacteriology	1	2	**Bacteriology, Mycology and Immunology**
673	Specific bacteriology	2	3	
674	Advanced immunology	1	2	
675	Advanced mycology	2	3	
676	Microbiology of fish	2	2	
677	Microbiology of poultry and rabbits	1	2	
678	Microbiology of invertebrates	1	2	
679	Diagnostic microbiology	2	2	
680	General virology	1	2	**Virology**
681	Special virology	2	2	
682	Viral immunology	1	2	
683	Viral vaccines	2	3	
684	Veterinary medical entomology	2	2	**Parasitology**
685	helminthology	2	2	
686	protozoology	2	2	
687	Parasites of birds	2	2	
688	Parasites of fish	2	2	
689	Snails and their veterinary significance	1	2	
690	Parasitic immunology	1	2	
691	Clinical parasitology	2	2	
692	Parasites of wild animals	1	2	
693	Specific parasitology (advanced)	2	2	
694	Veterinary pharmacology (General Advanced)	2	2	**Pharmacology**
695	Veterinary pharmacology, autonomic nervous system and local hormones	2	2	
696	Veterinary pharmacology and CNS	2	2	
697	Veterinary pharmacology and anaesthesia	2	2	
698	Veterinary pharmacology and systems	2	2	
699	Veterinary pharmacology and metabolism	2	2	
700	Medicinal hormones	2	2	
701	Chemotherapy	2	2	
702	Drug toxicology	1	2	
703	Biological evaluation of drugs	1	1	
704	Dairy hygiene and control (advanced)	2	2	**Food hygiene**
705	Dairy microbiology	2	2	
706	Dairy technology	2	2	
707	Food analysis	2	2	
708	Specific courses in milk contamination and diseases transmitted by milk	1	2	

709	Food poisoning	1	2	
710	Hygiene and control of dairy plants	2	2	
711	Hygiene of slaughter animal	1	2	**Food hygiene**
712	Hygiene and management of abattoirs	2	2	
713	Meat Hygiene	2	2	
714	Bird and rabbit meat hygiene	1	2	
715	Food technology	1	2	
716	Food microbiology	2	2	
717	Microbiology of animal byproducts	1	1	
718	Microbiology of fish and crustaceans	1	2	
718	Meat and fish analysis	1	2	
719	Hygiene and control of meat and fish plants	2	2	
720	Advanced general medicine	2	2	**Animal medicine and infectious diseases**
721	Ruminant medicine	2	2	
722	Equine medicine	2	2	
724	Pet animal medicine	2	2	
725	Wild animal medicine	2	2	
726	Metabolic diseases	2	2	
727	Nutritional deficiency diseases	2	2	
728	Skin diseases	1	2	
729	Diseases of newly born animals	2	2	
730	Cattle infectious diseases	1	2	**Medicine and infectious diseases**
731	Sheep and goat infectious diseases	2	2	
732	Camel infectious diseases	2	2	
733	Equine infectious diseases	2	2	
734	Pet animal infectious diseases	2	2	
735	Laboratory animal infectious diseases	1	2	
736	Udder and calve infectious diseases	2	2	
737	Buffalo infectious diseases	1	1	
738	Wild animal infectious diseases	1	1	
739	Forensic medicine and veterinary regulations	2	2	**Forensic Medicine, Toxicology, ,and Veterinary regulations**
740	General toxicology	2	2	
741	Environmental toxicology	2	2	
742	Forensic toxicology	2	2	
743	Clinical toxicology	2	2	
744	Gynaecology (specific courses for ruminants, equines and pet animals)	2	2	**Theriogenology**
745	Andrology (specific courses for ruminants and pet animals)	2	2	
746	Obstetrics (specific courses for farm and pet animals)	2	2	
746	Reproduction and immunity	1	2	
747	Artificial insemination in ruminants	2	2	
748	Artificial insemination in equines	2	2	
749	Artificial insemination in birds and pet animals	1	2	
750	artificial insemination in rabbit	1	2	
751	Embryo transfer in farm animals	1	2	
752	obstetrics and artificial insemination in wild animals	1	2	
753	Advanced general surgery	2	2	**Surgery, Anesthesiology and Radiology**
754	Special surgery (organs)	2	2	
755	Ophthalmic surgery	2	2	
756	Surgery of the digestive system	2	2	
757	Surgery of limbs and diseases of hoof & claw	2	2	
758	Experimental surgery	2	2	
759	Anesthesiology	1	1	
760	Diagnostic imaging	2	2	

761	Bacterial diseases of poultry	2	2	**Bird and Rabbit Medicine**
762	Viral diseases of poultry	2	2	
763	Mycotic diseases of poultry	2	2	
763	Parasitic diseases of poultry	1	2	
764	Nutritional deficiency diseases	1	2	
765	Wild and migratory birds diseases	1	2	
766	Rabbits diseases (Advanced)	2	2	
767	Prevention in poultry field	2	2	
768	Laboratory diagnosis of poultry diseases	2	2	
769	Farm animal hygiene (advanced)	2	2	**Hygiene and Zoonoses**
770	Poultry hygiene (advanced)	2	2	
771	Environmental hygiene and pollution	2	2	
772	Combating epidemic diseases	2	2	
773	Control of pests and disease vectors	2	2	
774	Insecticides and general hygiene	2	2	
775	Animal farm hygiene	2	2	
776	Disinfection and disinfectants	2	2	
777	Epidemiology of animal and bird diseases	2	-	
778	Zoonoses advanced	2	2	**Hygiene and Zoonoses**
779	Role of rodents in transmission of zoonotic diseases	2	2	
780	Role of wild animals in transmission of zoonotic diseases	2	2	
781	Epidemiology of zoonotic diseases	2	-	
782	Prevention and control of zoonotic diseases	2	-	
783	Role of aquatic animals and fish in transmission of zoonotic disease	2	-	
784	Genetic of microorganisms	1	2	**Husbandry and Animal Wealth Development**
785	Genetic engineering (advanced)	1	2	
786	Cytogenetics	1	-	
787	Population genetics (advanced)	2	-	
788	Physiological genetics	2	-	
789	Biochemical and radiation Genetics	1	2	
790	Advanced animal breeding and improvement	2	-	**Husbandry and Animal Wealth Development**
791	Advanced poultry breeding and improvement	2	-	
792	Advanced cattle and buffalo production	2	2	
793	Advanced sheep and goat production	2	2	
794	Advanced poultry production	2	2	
795	Advanced rabbit production	2	2	
799	Economics of dairy production farms	2	-	**Husbandry and Animal Wealth Development**
800	Economics of poultry production farms	2	-	
801	Economics of fish production farms	2	-	
802	Feasibility studies of animal production projects	2	-	
803	Management of animal production farms	2	-	
804	Economics of beef production farms	2	-	
811	Microbial aquatic diseases	3	3	**Fish Medicine and Management**
812	Parasitic aquatic diseases	3	3	
813	Non-infectious aquatic diseases	3	3	
814	Epidemiology of aquatic diseases	2	1	
815	Aquaculture	3	1	
816	Special studies on aquatic sciences	2	2	

6) Teaching and Learning Methods

The program features a variety of teaching approaches for different intended

learning objectives including:

a. Lectures to gain knowledge and understanding skills.
b. Practical sessions for the students to gain practical skills.
c. Self-learning activities.

7) Student assessment

The program depends on different assessment ways:

a. <u>Course assessment:</u>

- 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. <u>Master Thesis</u>

- Annual reports adopted by the Faculty
- Finally, the assessment of thesis measure the individual student ability to work independently in the field specialization
- Final evaluation and approval by a judging committee of at least three professors including one or more of the supervisors and an external professor. This assesses the ability to write a review article, perform the needed practical steps and to present the results in tables and graphs. In addition, the skills of analysis of results and discussion with previous findings obtained by other authors are also assessed

Assessment of program intended learning outcomes

Tool or method	ILOs			
	K & U (a)	I.S (b)	P.P (c)	G.T (d)
Written	1-6	1,2,4,7		
Oral	1, 2	3,5,6		
Practical		7	1-4	
Assignments	3, 6	4, 5		1-8
Thesis	2-6	1-7	1-4	1-8

8) Score classification:

Excellent	At least 90% and more

Very good	At least 80% and less than 90%
Good	At least 70% and less than 80%
Pass	At least 60% and less than 70%
Fail	Less than 60%

9) Program admission requirements

- The Applicant must normally satisfy the Faculty of Veterinary Medicine University of Sadat City general entrance and requirement. The normal minimum entrance qualification for registration at the Faculty on a master's program:
  - Bachelor degree in Veterinary Medical Sciences of one of the Egyptian Universities or hold a degree in Veterinary Medical Sciences equivalent through the Supreme Council of Universities with general grade at least "Good" and at least grade "Very Good" in specialization.
  - Diploma of general grade at least "Good" and at least grade "Very Good" in specialization. The total number of study hours must be not less than 3 weekly in that specialization.

10) Regulations for progression of program

a) Registration period for the MVSc in Veterinary Medical Sciences is at least 2 years after the approval date by the Faculty council, one year for studying the courses and another for performing research and preparing the thesis. The registration period should not exceed 4 years. An extension for a maximum of 2 years could be approved by the Faculty council depending on the supervisor report approved by the department council and the postgraduate and research committee in the Faculty. The total period must not be more than 6 years.

b) <u>The general conditions for having a master degree in Veterinary Medical Sciences include:</u>

1) The student should conduct the 5-6 courses proposed by both department council and approved by postgraduate and research committee and Faculty council. The student will entitled to apply for the exam only after meeting attendance rate for each course. These courses must include:

- Fundamental (core) course offered by the department responsible for the program (lectures: 3 hours/week; practical: 4 hours/week).
- Research methodology (lectures: 1 hour/week; practical: 3 hours/week).
- 3-4 elective courses (10-12 total hours/week) offered by other departments and are selected according to research nature.

2) The student should pass written, practical and oral exams successfully in all courses. Examination is held twice a year (December and April).

- Failure or depriving from entering one or more course did not requires reexamination of successful passed courses.
- Each student has 4 chances to enter the exams, and the Faculty council should deprive the student from entering the exam if his attendance rate in the course is less than 75%.
- Time of written exam is 3 hours if the total study hours of the course are 3 hours or more per week. In case of a course with total study hours less than 2 per week, the time of written exam is 2 hours
- The final marks for each course having 3 study hours (lecture and practical) per week is 100 and 50 marks for any course with less than 3 study hours. The marks are divided into 50% for written exam, and 50% for both practical and oral exams.

3) The student must prepare a master thesis accepted by the judging committee in an open discussion. The master certificate must indicate the thesis topic and the field of specialization.

c) <u>General rules</u>

1) Applications for registration should be sent during March and September each year.

2) The applicant should submit a request enrolment for the Faculty dean who forwards it to the concerned department council to determine the research subject and the study program and then take calendar after complete documentation on the Faculty council for approval.

3) The thesis title should be identified at least 2 months before being submitted, and the judging committee has the right to amend the title without prejudice the subject of research.

4) The Faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research, and his period will not counted.

5) Registration will be cancelled in one of the following cases:

- If the supervisor report during the registration period is unsatisfactory
- If student did not submit his thesis before the end of registration period.
- If the judging and discussion committee rejected the thesis twice.

6) The applicant should submit 10 copies of the thesis after its validity is approved by the judging and discussion committee to be distributed to the committee members and Faculty library and the judging and discussion

committee may decide the exchange of the thesis with other universities or printing at the expense of the university.

	Program coordinators	Head of department
Name	Prof. Dr. Said Fathalla	Prof. Dr. Shaaban Gadallah
Signature		

Matching program ILOs with ARS - Matrix

Program ILOs	ARS																							
	K&U (a)						I.S. (b)							P.P. (c)				G.T. (d)						
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
K&U	1	2	3	4	5	6																			
.I.S							1	2	3	4	5	6	7												
.P.P														1	2	3	4								
.G.T																		1	2	3	4	5	6	7	8

Program Specification Matrix

Master in Veterinary Medical Sciences (PHYSIOLOGY)

Name of student: إبراهيم سليم أحمد زهران **Registration date: MAY- 2011**

Courses		Total Contact hours/ course	No. of hours / week			K.U (a)						I.S (b)							P.P (c)				G.T (d)							
Code	Name		.Lect	.Lab	Total	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
-	Fundamental or Basic (core) course	308	3	4	7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
-	Research methodology	176	1	3	4			x			x				x	x				x	x	x		x	x	x	x	x		x
602	Comparative nervous system and endocrine glands	176	2	2	4	x		x				x							x				x	x				x		
619	Histological and histochemical structure of nervous system and endocrine glands	176	2	2	4	x		x				x							x				x	x				x		
634	Biochemistry of hormones and reproduction	176	2	2	4	x		x				x							x				x	x				x		
Total		1012	10	13	23																									
Thesis							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Program Specification Matrix

Master in Veterinary Medical Sciences (PHYSIOLOGY)

Name of student: عفاف ابو بكر قشطة **Registration date: MAY- 2014**

Courses		Total Contact hours/ course	No. of hours / week			K.U (a)						I.S (b)							P.P (c)				G.T (d)							
Code	Name		.Lect	.Lab	Total	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4	5	6	7	8
-	Fundamental or Basic (core) course	308	3	4	7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
-	Research methodology	176	1	3	4			x			x				x	x				x	x	x		x	x	x	x	x		x 9
609	General and special embryology	176	2	2	4	x		x				x							x				x	x				x		
633	Biochemistry of tissues and body fluids	176	2	2	4	x		x				x							x				x	x				x		
700	Medicinal hormones	176	2	2	4	x		x				x							x				x	x				x		
Total		1012	10	13	23																									
Thesis							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x