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## Histology (A)

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science.**

Department offering the course: **Department of Histology & Cytology.**

Academic year/level : **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 17/10/2008)

### **A-Basic Information:**

**Title : Special Histology**

**Code: Vet 00621 a**

**Lecture : 2 h/W**

**Practical: 4 h/W**

**Total : 6 h/W**

### **B- Professional Information:**

#### **1- Overall Aims:**

- Understand the basic histological structure of different tissues.
- Understand the organs structure.
- Differentiate and identify different body organs.

#### **2- Intended Learning Outcomes (ILOs):**

##### **a- Knowledge and understanding:**

After successful completion of this course the students should have the ability to:-

- a.1. Mention and Describe basics about special histology .
- a.2. Describe organ morphogenesis .
- a.3. Basic information about organs identification.

##### **b- Intellectual skills:**

After successful completion of this course the students should have the ability to:-

- b.1. Recognize different body organs & systems .
- b.2. Differentiate between types of organs & tissues.



b.3. Choose the suitable methods for preparing and staining of different organs and tissues.

**c- Professional and practical skills:**

After successful completion of this course the students should have the ability to:-

- c.1. using microscope and stained slides in tissue and organ identification.
- c.2. tissue differentiation.
- c.3. organs identification.

**d- General and transferable skills:**

After successful completion of this course the students should have the ability to:-

- d.1. Good member of Histologist team
- d.2. Ability to make accurate identification of the different tissues & organs.

**3- Contents :**

Topic	No. of hours	Lecture	practical
Digestive system	46	10	36
Cardiovascular system	12	4	8
Respiratory system	8	4	4
Nervous system	12	8	4
Skin	12	4	8
<b>Total</b>	<b>90</b>	<b>30</b>	<b>60</b>

**4- Teaching and Learning Methods:**

- 4.1. Lectures in which data show is used for demonstration.
- 4.2. Lab sessions in which stained slides and microscopes, Panorama slides and 3D Demonstrator.



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## 5- Student Assessment Methods:

- 5.1. Mid term exam to assess knowledge and intellectual skills.
- 5.2. Practical exam to assess professional and practical skills.
- 5.3. Written exam to assess knowledge and understanding.
- 5.4. Oral to assess understanding skills, intellectual and transferable skills.

## Assessment Schedule:

Assessment 1 : Mid term examination	week 7
Assessment 2 : Practical examination	week 13
Assessment 3 : Written examination	week 15
Assessment 3 : Oral examination	week 15

## Weighting of Assessments:

Mid-term examination	5 %
Written examination	50 %
Oral examination	15 %
Practical examination	25 %
Semester work	5 %
Total	100 %

## 6- List of References :

### 6.1. Course notes

- Fundamental veterinary histology

### 6.2. Essential books (Text books)

- *Drury R.A.B. and Wallington E.A. (1980):* Carleton's Histological technique. 4<sup>th</sup> ED., Oxford Unvi., Press. London, New York, Toronto.
- *Junqueira, L.C. and Carneiro J. (2003):* Basic histology. Tenth Edition. McGraw- Hill. New York Chicago San Francisco Lisbon London Madrid Mexcio city New Delhi San Juan Seoul Singapore Sydney Toronto.



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- **Eroschenko, V.P. (2005):** Difiore's Atlas of histology. 10<sup>th</sup> Ed. Philadelphia Baltimore New York London Buenos Aires Hong Kong Sydney Tokyo.
  - **William J. Banks (1993):** Applied Veterinary Histology, 3<sup>rd</sup> Ed., Mosby year book. St. Louis Baltimore Boston Chicago London Philadelphia Sydney Toronto.

### **6.3. Recommended books**

- **Cormack, D.H. (1993):** Essential histology. First Edition. J.B. Lippincott Company. Philadelphia
- **Dellamann, H.D. and Eurell. J. (1998):** Text book of Veterinary Histology, 5<sup>th</sup> Paris Bangkok Buenos Aires Hong Kong Munich Sydney Tokyo Wroclaw .

### **6.4. Periodicals, Web sites,..... etc**

- Journal of Cell Ultrastructure
- Cell tissue research
- American Journal of Anatomy
- <http://www.vet.edu>.
- Anatomia Histologia Embryologia

## **7- Facilities Required for Teaching and Learning:**

- A prepared Lab (microscopes and stained slides).
- Facilities of tissue processing & staining.
- Immunohistochemistry kits.

**Course coordinator : Dr. Ihab El-Zoghby**

**Head of Department: Dr. Ihab El-Zoghby**

**Date :**



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## Histology (B)

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science.**

Department offering the course: **Department of Histology & Cytology.**

Academic year/level : **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 17/2/2009)

### **A-Basic Information**

**Title : Special Histology**

**Code: Vet 00621 b**

**Lecture : 2 h/W**

**Practical: 4 h/W**

**Total : 6 h/W**

### **B- Professional Information:**

#### **1- Overall Aims:**

- Understand the basic histological structure of different tissues.
- Know the organs structure.
- Identify and differentiate between different body organs.

#### **2- Intended Learning Outcomes (ILOs):**

##### **a-Knowledge and understanding :**

After successful completion of this course the students should have the ability to:-

- a.1. Mention and Describe basics information about fish histology .
- a.2. Mention and Describe basics and General information about organ in different types of fish.
- a.3. Basic information about different body tissues.

##### **b-Intellectual skills :**

After successful completion of this course the students should have the ability to:-



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- b.1. Recognize different fish organs.
  - b.2. Choose the suitable technique for preparing and staining of fish organs.
  - b.3. Identify different tissues and organs (microscopically).

**c-Professional and practical skills :**

After successful completion of this course the students should have the ability to:-

- c.1. apply staining.
- c.2. using microscopes in tissue identification and differentiation.
- c.3. organs classification and identification (microscopically).

**d-General and transferable skills :**

After successful completion of this course the students should have the ability to:-

- d.1. Team work.
- d.2. Ability to make final & accurate judge & identification of the tissue & organs.

**3- Contents :**

Topic	No. of hours	Lecture	practical
Endocrine system (Special)	14	6	8
Urogenital system (Special)	22	10	12
Digestive system	14	4	10
Respiratory system	8	2	6
Urinary system	8	2	6
Male and female Genital	14	2	12
Endocrine system	4	2	2
Lymphatic system	3	1	2
Skin	3	1	2
<b>Total</b>	<b>90</b>	<b>30</b>	<b>60</b>



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#### **4- Teaching and learning methods :**

- 4.1. Slides
- 4.2. CD's
- 4.3. Panorama slides
- 4.4. 3 D Demonstrator

#### **5- Student assessment methods :**

- 5.1. Mid term examination to assess the information and intellectual skills.
- 5.2. Practical exam to assess professional and practical skills
- 5.3. Written exam to assess knowledge of drawing
- 5.4. Oral to assess intellectual skills

#### **Assessment schedule :**

- Assessment 1 : Mid term examination week 7  
Assessment 2 : Practical examination week 13  
Assessment 3 : Written examination week 15  
Assessment 3 : Oral examination week 15

#### **Weighting of assessments :**

Mid-term examination	5%
Written examination	50%
Oral examination	15%
Practical examination	25%
Semester work	5 %
Total	100%

#### **6- List of references :**

##### **6.1. Course notes**

- Poultry and Fish histology

##### **6.2. Essential books (Text books)**

- *Drury R.A.B. and Wallington E.A. (1980):* Carleton's Histological technique. 4<sup>th</sup> ED., Oxford Unvi., Press. London, New York, Toronto.



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- **Junqueira, L.C. and Carneiro J. (2003):** Basic histology. Tenth Edition. McGraw- Hill. New York Chicago San Francisco Lisbon London Madrid Mexcio city New Delhi San Juan Seoul Singapore Sydney Toronto.
  - **Takashima, F. and Hibiya, T. (1995):** An Atlas of Fis histology. 2<sup>nd</sup>. Ed., Kodansha, Gustav fisher Verlag Tokyo, New York.
  - **Eroschenko, V.P. (2005):** Difiore's Atlas of histology. 10<sup>th</sup> Ed. Philadelphia Baltimore New York London Buenos Aires Hong Kong Sydney Tokyo.
  - **William J. Banks (1993):** Applied Veterinary Histology, 3<sup>rd</sup> Ed., Mosby year book. St. Louis Baltimore Boston Chicago London Philadelphia Sydney Tornado.

### 6.3. Recommended books

- **Cormack, D.H. (1993):** Essential histology. First Edition. J.B. Lippincott Company. Phildelphia
- **Dellamann, H.D. and Eurell. J. (1998):** Text book of Veterinary Histology, 5<sup>th</sup> Paris Bangkok Buenos Aires Hong Kong Munich Sydney Tokyo Wroclaw .

### 6.4. Periodicals, Web sites,..... etc

- Journal of Fish Biology
- Journal of Cell Ultrastructure      Cell tissue research
- American Journal of Anatomy

## 7- Facilities required for teaching and learning

- Laboratory
- Facilities for tissue processing & staining
- Immunohistochemistry kits

Course coordinator : **Dr. Ihab El-Zoghby**

Head of Department: **Dr. Ihab El-Zoghby**

Date :





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## **Anatomy (A)**

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science.**

Department offering the course: **Department of Anatomy and Embryology.**

Academic year/level : **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 22/10/2008)

### **A-Basic Information**

**Title :** Nervous system, sense organs and common integument anatomy and special embryology.

**Lecture : 2 h/W**

**Code: Vet 00622 a**

**Practical: 4 h/W**

**Total : 6 h/W**

### **B- Professional Information**

#### **1- Overall aims of course :**

The aim of this course is to provide the principle information of anatomy the nervous, systems sense organs. This course provide the principle information of special embryology. This will enable students to gain skills for comparative anatomy of the different domestic animals and the nervous system and sense organs.

#### **2- Intended learning outcomes of course (ILOs) :**

##### **a-Knowledge and understanding :**

After successful completion of this course the students should have the ability to:-

- a.1. A concise knowledge about anatomy of the nervous system of different animal species.
- a.2. A concise knowledge about sense organs.



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- a.3. Determine anatomical features and branches of nervous system of different domestic animals
  - a.4. Define and comprehensive knowledge the nervous system and comparative anatomy among different domestic animals and special embryology.
  - a.5. Define and comparative anatomy of the skull and muscles of the head and neck.

**b-Intellectual skills :**

After successful completion of this course the students should have the ability to:-

- b.1. Dissect the head and neck .
- b.2. Determine type of skull and the animal species.
- b.3. Determine the different features of nervous system and sense organs .
- b.4. Determine of the origin and insertion of different skeletal muscles of the head and neck.

**c-Professional and practical skills :**

After successful completion of this course the students should have the ability to:-

- c.1. Dissect the head and neck.
- c.2. Conduct shape of the skulls of different domestic animals.
- c.3. Compare between bones of the skull of different domestic animals
- c.4. Compare between different systems of different domestic animals .

**d-General and transferable skills :**

After successful completion of this course the students should have the ability to:-

- d.1 Dissect and differentiate the bones.
- d.2. Dissect branches of the peripheral nerves.
- d.3. Cooperate with other veterinary hospitals and departments

### 3- Contents :

Topic	No. of hours	Lecture	Practical
Upper Digestive System	5	5	-
Nervous System	5	5	-
Sense Organs	4	4	-
Common Integument	1	1	-
Special Embryology	15	15	-
Skull Anatomy	8	-	8
Dissection of the Head and Neck	50	-	50
Practical Special Embryology	2	-	2
<b>Total</b>	<b>90</b>	<b>30</b>	<b>60</b>

### 4- Teaching and learning methods :

- 4.1. Using freshly died horses and donkeys
- 4.2. Using the educational models and phantoms
- 4.3. Using CD's, Power Point slides and video tapes in lecturing
- 4.4. Using Prepared bones of died animals
- 4.5. Demonstrating formalin preserved carcasses
- 4.6. Using donkey as a model lab animal for equine
- 4.7. Using fishes and domestic birds as a models for anatomy

### 5- Student assessment methods :

- 5.1. Practical exam to assess professional and practical skills
- 5.2. Oral exam to assess knowledge, information and intellectual skills
- 5.3. Written exam to assess knowledge, information and intellectual skills

### Assessment schedule :

- Assessment 1 : Written exam. week 15  
Assessment 2 : Oral exam. week 15  
Assessment 3 : Practical exam. week 12

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**Weighting of assessments :**

Written examination	50%
Oral examination	10%
Practical examination	40%
Semester work	-- %
Other types of assessment	0%
Total	100%

**6- List of references :**

6.1. Course notes

6.2. Essential books (Text books)

- Sense organs and common integument
- Special embryology

6.3. Recommended books

- Anatomy of domestic animals volume I and II Getty 19.
- Atlas of veterinary anatomy
- The viscera of domestic animals Nickle & Schumar

6.4. Periodicals, Web sites,..... etc

- Acta anatomica
- Equine veterinary journal
- Journal of Animal Science
- Research on Veterinary Science
- American Journal of Veterinary Anatomy
- American Journal of Veterinary Research
- Veterinary record.
- <http://www.pubmed.com>

**7- Facilities required for teaching and learning**

- A laboratory for dissection and demonstration of the muscles, bones and nerves of carcasses.
- Scalpels, knives and saws.
- Holders and tanks for preservation of organs and muscles.
- Donkeys as a model for horse.
- Fish and birds for anatomy and dissection.



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- Phantoms and models for different organs and bones.
  - Multimedia projector and a computer.
  - Slide projector.
  - Overhead projector.
  - Carcasses and animals for dissection and demonstration.

**Course coordinator :**

**Prof. Dr. Mohamed Omar Hussein El Shaieb**

**Prof. Dr. Mohamed Attia Metwally**

**Head of Department**

**Prof. Dr. Dr. Mohamed Attia Metwally**

**Date :**



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## **Anatomy and Embryology (B)**

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science.**

Department offering the course: **Department of Anatomy and Embryology.**

Academic year/level : **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 13/2/2009)

### **A-Basic Information**

**Title :** Digestive, respiratory, cardiovascular and lymphatic systems anatomy.

**Lecture : 2 h/W**

**Code : Vet 00622 b**

**Practical: 4 h/W**

**Total : 6 h/W**

### **B- Professional Information**

#### **1- Overall aims of course:**

The aim of this course is to provide the principle information of anatomy the digestive, respiratory , cardiovascular and lymphatic systems. This course provide the principle information of abdomen and thorax. This will enable students to gain skills for comparative anatomy of the different domestic animals and the digestive, respiratory, cardiovascular and lymphatic system.

#### **2- Intended learning outcomes of course (ILOs) :**

##### **a- Knowledge and understanding :**

After successful completion of this course the students should have the ability to:-

- a.1. A concise knowledge about anatomy of the digestive system of different animal species
- a.2. A concise knowledge about respiratory and cardiovascular systems



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- a.3. Determine the anatomical features and positioning of lymphatic system of different domestic animals
  - a.4. Definition and comprehensive knowledge the digestive, repository, cardiovascular and lymphatic system and comparative anatomy among different domestic animals .
  - a.5. Definition and comparative anatomy of the bones and muscles of the domestic animals.

**b- Intellectual skills :**

After successful completion of this course the students should have the ability to:-

- b.1. Dissect the abdomen and thorax.
- b.2. Determine type of bones of the vertebral column and the animal species.
- b.3. Determine the different features of digestive and respiratory system.
- b.4. determine the origin and insertion of different skeletal muscles .

**Professional and practical skills :**

After successful completion of this course the students should have the ability to:-

- c.1. Dissect the abdomen and thorax.
- c.2. Conduct shape and position of different bones of the vertebral column and sternum of different domestic animals.
- c.3. Compare between bones of the vertebral column, sternum and ribs of different domestic animals
- c.4. Compare between different systems of different domestic animals.

**General and transferable skills :**

After successful completion of this course the students should have the ability to:-

- d.1. Dissect and differentiate the bones.
- d.2. Dissect branches of the muscles.
- d.3. Cooperate with other veterinary hospitals and departments.

### 3- Contents :

Topic	No. of hours	Lecture	Practical
Lower Digestive system	13	13	-
Respiratory System	13	11	-
Cardiovascular System		5	
Lymphatic System	15	6	-
Vertebral Column	-	-	12
Anatomy of Sternum	-	-	4
Dissection of the Abdomen and Thorax	-	-	40
Comparative organs (Digestive and Respiratory)	-	-	4
<b>Total</b>	<b>41</b>	<b>35</b>	<b>60</b>

#### 4- Teaching and learning methods :

- 4.1. Using freshly died horses and donkeys
- 4.2. Using the educational models and phantoms
- 4.3. Using CD's, Power Point slides and video tapes in lecturing
- 4.4. Using Prepared bones of died animals
- 4.5. Demonstrating formalin preserved carcasses
- 4.6. Using donkey as a model lab animal for equine
- 4.7. Using fishes and domestic birds as a models for anatomy

#### 5- Student assessment methods :

- 5.1. Written exam to assess knowledge, understanding and intellectual skills
- 5.2. Oral exam to assess knowledge, understanding and intellectual skills
- 5.3. Practical exam to assess professional and practical skills

#### Assessment schedule :

Assessment 1 : Written exam.	week 15
Assessment 2 : Oral exam.	week 12
Assessment 3 : Practical exam.	week 12





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**Weighting of assessments :**

Written examination	50%
Oral examination	10%
Practical examination	40%
Semester work	-- %
<b>Total</b>	<b>100%</b>

**6- List of references :**

6.1. Course notes

6.2. Essential books (Text books)

- Digestive system
- Respiratory system
- Cardiovascular system
- Lymphatic system
- Dissection of the abdomen and thorax

6.3. Recommended books

- Anatomy of domestic animals volume I and II Getty 19.
- Atlas of veterinary anatomy
- The viscera of domestic animals Nickle & Schumar

6.4. Periodicals, Web sites,..... etc

- Acta anatomica
- Equine veterinary journal
- Journal of Animal Science
- Research on Veterinary Science
- American Journal of Veterinary Anatomy
- American Journal of Veterinary Research
- Web sites: <http://www.pubmed.com>

**7- Facilities required for teaching and learning**

- A laboratory for dissection and demonstration of the muscles, bones and nerves of carcasses.
- Scalpels, knives and saws



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- Holders and tanks for preservation of organs and muscles.
  - Donkeys as a model for horse
  - Fishes and birds for anatomy and dissection
  - Phantoms and models for different organs and bones
  - Multimedia projector and a computer
  - Slide projector
  - Overhead projector
  - Carcasses and animals for dissection and demonstration

**Course coordinator :**

**Prof. Dr. Mohamed Omar Hussein El Shaieb**

**Prof .Dr. Mohamed Attia Metwally**

**Head of Department**

**Prof. Dr. Mohamed Attia Metwally**

**Date :**



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## **Animal Physiology (C)**

**Benha University** Faculty of **Veterinary Medicine**  
Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Department of Physiology.**

Academic year / Level: **2nd Year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

(Then approved in this recent template by department council on 20/9/2009)

### **A- Basic Information**

**Title: Physiology** Code: **Vet 00623 a**

**Lecture: 3 hours**

**Practical: 2 hours** Total: **5 hours**

### **B- Professional Information**

#### **1 – Overall Aims of Course:**

The aim of the course is to provide the students with basic information about physiology of the Central nervous system, Autonomic nervous system, Endocrine system and cardiovascular system.

#### **2 – Intended Learning Outcomes of Course (ILOs)**

##### **A-Knowledge and Understanding:**

After successful completion of this course the students should have the ability to:-

- a.1- Identify the different endocrine organs, hormones and their mechanism of action.
- a.2- Recognize the structure of the cardiovascular system including the heart and blood vessels and realize the different properties of cardiac muscle.
- a.3. Summarize the mechanism by which CNS and ANS work.
- a.4. Know reflex arc and reflex action and understand different type of reflexes



### **B-Intellectual Skills:**

After successful completion of this course the students should have the ability to:-

- b.1- Determine the integrated function of the CNS and autonomic nervous systems in order to facilitate understanding of certain mechanisms of some diseases and their treatment
- b.2. Enhance certain types of production by knowing functions and modes of action of some hormones

### **C-Professional and Practical Skills:**

After successful completion of this course the students should have the ability to:-

- C1. practice how to measure blood pressure and pulse rate.
- C2. perform dissection of the frog's heart to understand and study properties of cardiac muscles

### **D-General and Transferable Skills:**

After successful completion of this course the students should have the ability to:-

- d1- Working in a team work.
- d2- Presentation of a scientific study and case reports.
- d3- Accept basic knowledge for pharmacology and veterinary medicine.

### **3- Contents**

<b>Topic</b>	<b>No. of hour</b>	<b>Lecture</b>	<b>Practical</b>
<b>Physiology of the Autonomic Nervous System</b>	12	5	7
<b>Physiology of the Central Nervous System</b>	24	10	14
<b>Physiology of the Cardiovascular System</b>	22	10	12
<b>Physiology of the Endocrine System</b>	17	5	12
<b>Total</b>	<b>75</b>	<b>30</b>	<b>45</b>



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## **4– Teaching and Learning Methods**

Lectures and lab sessions in which the following facilities are used:

- 4.1- Experimental animals.
- 4.2- Over head projector.
- 4.3- CD's, slides and video tapes.
- 4.4- Microscopes, hemocytometer, glass slides, blood stains .... etc.

## **5- Student Assessment Methods**

- 5.1 Mid term exam to assess the knowledge and intellectual skills.
- 5.2 Practical exam to assess professional and practical skills.
- 5.3 Oral exam to assess understanding, intellectual and transferable skills.
- 5.4 Written exam to assess knowledge, understanding and intellectual skills.

### **Assessment Schedule**

Assessment 1	Mid term exams	Week 4,6,8,10,12.
Assessment 2	Practical exam	week 13
Assessment 3	Oral exam	Week 13
Assessment 4	Written exam	Week 15

### **Weighting of Assessments**

Mid-Term Examination	10 %
Final-term Examination	50 %
Oral Examination.	10 %
Practical Examination	20 %
Semester Work	0%
Other types of assessment	0 %
Total	100%



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## **6- List of References**

### 6.1- Course Notes

Veterinary Physiology .

### 6.2- Essential Books (Text Books)

Introduction of Hematology. Rapaport, 1987.

Textbook of Veterinary Physiology. Gunningham, 1992.

### 6.3- Recommended Books

Textbook of Medical Physiology. Guyton and Hall, 1996.

Textbook of endocrine physiology. Griffin and Ojeda.

### 6.4- Periodicals, Web Sites, ... etc

Veterinary Journal

Journal of Veterinary Internal Medicine..

Poultry Science

Veterinary Record.

## **7- Facilities Required for Teaching and Learning**

Experimental and laboratory animals.

Data show and computer lab.

Microscopes, glass slides, blood stains, Sahles apparatus, cardiogram

**Course Coordinator: Prof Dr Mohamed El-Azab**

**Head of Department: Prof Dr Mohamed El-Azab**

**Date:**

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## Physiology (D)

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Department of Physiology.**

Academic year / Level: **2nd Year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

(Then approved in this recent template by department council on 20/2/2009)

### **A-Basic Information**

**Title: Physiology**

**Code: Vet 00623 b**

**Lecture: 3 hours**

**Practical: 2 hours**

**Total: 5 hours**

### **B- Professional Information**

#### **1 – Overall Aims of Course:**

The aim of the course is to provide the students with basic information about cell physiology which serves as the basis for body function and mechanisms that regulate the reproduction and lactation, digestive system, avian and fish physiology.

#### **2– Intended Learning Outcomes of Course (ILOs)**

##### **a-Knowledge and Understanding:**

After successful completion of this course the students should have the ability to:-

a1- know and understand the reproductive patterns and estrous cycle in different animals and differentiate between them according to type of estrous cycle, its duration and hormones controlling reproduction

a2- identify the structure of the digestive system and mechanisms control its functions.

a3- identify and recognize the points of differences and similarities between mammals, avian and fish.



### **b-Intellectual Skills:**

After successful completion of this course the students should have the ability to:-

- b1. enhance reproduction in different species by understanding
- b2- Determine the different patterns of reproduction in animals.
- b3- Recognition of the puberty, maturity, pregnancy and parturitions in animals, fish and birds.

### **c-Professional and Practical Skills**

- c1. perform vaginal smear and identify different phases of estrous cycle
- c2. do pregnancy diagnosis
- c3. train how to examine ruminal juice
- c4. practice to examine semen sample and detect its abnormalities
- c5. calculate RBCs and WBCs in avian and fish

### **d-General and Transferable Skills**

- d1- Accept the basic knowledge for gynecology, poultry and fish diseases.
- d2- Presentation of a scientific study and case reports.

## **3- Contents**

<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial /Practical</b>
<b>Physiology of Reproduction and lactation</b>	23	12	16
<b>Physiology of the Digestive System</b>	17	6	13
<b>Avian Physiology</b>	10	6	8
<b>Fish Physiology</b>	10	6	8
<b>Total</b>	<b>75</b>	<b>30</b>	<b>45</b>





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#### **4- Teaching and Learning Methods**

Lectures and lab sessions in which the following facilities are used:

- 4.1- Experimental animals.
- 4.2- Over head projector.
- 4.3- CD's, slides and video tapes.

#### **5- Student Assessment Methods**

- 5.1 Mid term exams to assess knowledge and intellectual skills.
- 5.2 Practical exam to assess professional and practical skills.
- 5.3 Oral exam to assess understanding, intellectual and transferable skills.
- 5.4 Written exam to assess knowledge and intellectual skills.

#### **Assessment Schedule**

Assessment 1	Mid term exams	Week 4,6,8,10,12.
Assessment 2	Practical exam	week 13
Assessment 3	Oral exam	Week 13
Assessment 4	Written exam	Week 15

#### **Weighting of Assessments**

Mid-Term Examination	10 %
Final-term Examination	50 %
Oral Examination.	10 %
Practical Examination	30 %
Semester Work	0 %
Total	100%

#### **6- List of References**

6.1- Course Notes

Veterinary Physiology .

6.2- Essential Books (Text Books)

Duke's physiology of domestic animals,. Swenson and Reece

6.3- Recommended Books

Avian physiology

Physiology of domestic fowl.



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Textbook of endocrine physiology. Griffin and Ojeda.

6.4- Periodicals, Web Sites, ... etc

Veterinary Journal

Journal of Veterinary Internal Medicine..

Poultry Science

Veterinary Record.

[www.ivis.org](http://www.ivis.org)

### **7- Facilities Required for Teaching and Learning**

Experimental and laboratory animals.

Data show and computer lab.

**Course Coordinator: Prof Dr Mohamed El-Azab**

**Head of Department: Prof Dr Mohamed El-Azab**

**Date:**



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## Biochemistry (A)

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Department of Biochemistry**

Academic year / Level : **2<sup>nd</sup> Year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 23/9/2008)

### A- Basic Information

**Title: Biochemistry**

**Code: Vet 00624 a**

**Lecture: 2 hours**

**Practical: 4 hours**

**Total: 6 hours**

### B- Professional Information

#### 1 – Overall Aims of Course:

The aim of the course is to provide the students with a basic education in the Respiratory chain and Metabolism of Carbohydrates and Lipids.

#### 2 – Intended Learning Outcomes of Course (ILOs)

##### a- Knowledge and Understanding:

After successful completion of this course the students should have the ability to:-

- a1- Basic knowledge about cellular energy production.
- a2- Basis of the metabolism and energy
- a3- Basis of the Anabolism.
- a4- Basis of Catabolism
- a5- Basis of metabolic disturbances

##### b-Intellectual Skills:

After successful completion of this course the students should have the ability to:-

- b1- know what about the nature of energy in the living cells
- b2- found the relations between the metabolism and diseases
- b3- judge the changes between the microbial and metabolic diseases



**c-Professional and Practical Skills:**

After successful completion of this course the students should have the ability to:-

- c1- know how the cell gain energy .
- c2- differentiate between the normal and abnormal metabolic pathways .
- c3- Know about the normal homeostasis of the cellular functions .

**d-General and Transferable Skills:**

After successful completion of this course the students should have the ability to:-

- d1- be a successful member chemists .
- d2- Presentation of a scientific study in medical laboratories .
- d3- Scientific chemists terms.

**3- Contents**

Topic	No. of hours	Lecture	Practical
Biological Oxidations	1	1	-
Oxidative Phosphorelation	10	2	8
High energy bonds	9	1	8
Absorption of carbohydrates	10	2	8
Aerobic oxidation of carbohydrates	1	1	-
Anaerobic oxidation of carbohydrates	1	1	-
Glycogenolysis and Glycogenesis	10	2	8
Gluconeogenesis	8	2	6
Blood sugar level	8	2	6
Glucosuria	2	2	-
Absorption of lipids	2	2	-
Transport of lipids and role of lipoproteins	6	2	4
Oxidation of Fatty acids	2	2	-
Biosynthesis of Fatty acids	10	2	8
Depot fat biosynthesis	6	2	4
Obesity	2	2	-
Fatty liver	2	2	-
<b>Total</b>	<b>90</b>	<b>30</b>	<b>60</b>

**4- Teaching and Learning Methods**

Lectures and lab sessions in which the following facilities are used:

- 4.1- Blackboards and chocks
- 4.2- Whiteboards and markers



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- 4.3- Over head projector transparent sheets  
4.4- Demonstration of chemical reactions.

## 5- Student Assessment Methods

- 5.1 Practical exam to assess professional and practical skills.  
5.2 Oral exam to assess knowledge, transferable and intellectual skills.  
5.3 Written exam to assess knowledge, understanding and intellectual skills.  
5.4 Quiz and semester work to assess understanding, practical and transferable skills.

### Assessment Schedule

Assessment 1	Quiz Examination	Week 6
Assessment 2	Written Examination	Week 15
Assessment 3	Oral Examination.	Week. 15
Assessment 4	Practical Examination	Week 13
Assessment 5	Semester Work	Week 13

### Weighting of Assessments

Quiz Examination	5 %
Written Examination	50 %
Oral Examination.	20 %
Practical Examination	20 %
Semester Work	5 %
Total	100%

## 6- List of References

### 6.1- Course Notes

A concise guid of Metabolism

### 6.2- Essential Books (Text Books)

*Devlin, T.M.(1993):* Textbook of Biochemistry: With Clinical Correlation. 3rd ed. (4th printing). Wiley-Liss: A John Wiley & Sons, Inc., Puplication: New York,

*Murray, R.K.; Granner, D.K.; Mayes, P.A. and Rodwell, V.W. (1996):* Harper's of Biochemistry. 24th ed. Appleton & Lange. Norwalk, Connexitcut, Loss Atlos, California.

*Zilva, M.; Charles, F. and Myne, N. (1993):* Clinical Chemistry in Diagnosis and Treatment. 6th ed. Saunders, Philadelphia, U.S.A.

### 6.3- Recommended Books

*Bakry, M.A. (1995):* Review of Medical Biochemistry. 3rd ed.



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*Khalifa, A. (1997):* Biochemistry for Medical Students. Fac. of Med., Ain Shams Univ.

*Salah, E. (1993):* Medical Biochemistry. 2nd ed. Fac. of Med., Ain Shams Univ.

*Zahran, M.A. (1994):* Lectures on Medical Biochemistry. Alexandria Univ.

#### **6.4- Periodicals, Web Sites, ... etc**

Journal of Biochemistry

American Journal of Biochemical Association.

American Journal of Veterinary Research.

### **7- Facilities Required for Teaching and Learning**

Biochemistry laboratory.

Routine Biochemical kit.

Faculty central laboratory .

Computer and internet lab.

**Course Coordinator: Prof Dr. Hussien Abd Al-Maksoud**

**Head of Department: Prof Dr. Hussien Abd Al-Maksoud**

**Date:**



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## Biochemistry (B)

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Department of Biochemistry**

Academic year / Level : **2<sup>nd</sup> Year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 23/2/2009)

### A- Basic Information

**Title: Biochemistry**

**Code: Vet 00624 b**

**Lecture: 2 hours**

**Practical: 4 hours**

**Total: 6 hours**

### B- Professional Information

#### 1 – Overall Aims of Course:

The aim of the course is to provide the students with a basic education in the Metabolism of Proteins , Protein biosynthesis, Biological fluids and Hormones .

#### 2 – Intended Learning Outcomes of Course (ILOs)

##### a-Knowledge and Understanding:

After successful completion of this course the students should have the ability to:-

- a1- Basic knowledge about the nitrogen balance .
- a2- Basis of the role of protein in growth
- a3- Basis of the Anabolism and catabolism of proteins .
- a4- Basis of the role of biological fluids in persistence of life
- a5- Basis of hormones chemistry and biological functions

##### b-Intellectual Skills:

After successful completion of this course the students should have the ability to:-

- b1- know what about the nitrogen balance and growth
- b2- found the relations between the metabolism and diseases
- b3- judge the changes between the microbial and metabolic diseases



### c-Professional and Practical Skills:

After successful completion of this course the students should have the ability to:-

- c1- know how the growth occurred .
- c2- Differentiate between the normal and abnormal metabolic pathways
- c3- Know about the normal homeostasis of the cellular functions .
- c4- know the relations between obesity and disturbances in body fluids

### d-General and Transferable Skills

- d1- Able to be a successful member chemists .
- d2- Presentation of a scientific study in medical laboratories .
- d3- Scientific chemists terms.

## 3- Contents

Topic	No. of hours	Lecture	Practical
Blood nitrogen balance	1	1	-
Essential and nonessential amino acids	10	2	8
Catabolism of amino acids	7	1	6
Urea formation	10	2	8
Protein metabolism and kidney functions	2	2	-
Metabolic disturbances of amino acids	2	2	-
Protein biosynthesis	10	2	8
Formation and metabolism of Purines	7	1	6
Formation and metabolism of Pyrimidins	5	1	4
Classification of hormones	2	2	-
Metabolism of steroid hormones	2	2	-
Metabolism of proteious hormones	8	2	6
Role of hormones in metabolism	2	2	-
Chemical compositions of urine	8	2	6
Abnormal urine	6	2	4
Chemistry of milk	6	2	4
Chemistry of blood, CSF, Lymph , Synovial, Pleural, pericardial and semen	2	2	-
<b>Total</b>	<b>90</b>	<b>30</b>	<b>60</b>





#### 4- Teaching and Learning Methods

Lectures and lab sessions in which one or more of the following facilities are used:

- 4.1- Blackboards and chocks
- 4.2- Whiteboards and markers
- 4.3- Over head projector transparent sheets
- 4.4- Demonstration of chemical reactions .

#### 5- Student Assessment Methods

- 5.1 Practical exam to assess professional and practical skills.
- 5.2 Oral exam to assess knowledge and information and intellectual skills.
- 5.3 Written exam to assess knowledge, information and intellectual skills.
- 5.4 Quiz and semester work (demonstration for some tests) to assess understanding, practical and transferable skills.

#### Assessment Schedule

Assessment 1	Practical Examination	Week	13
Assessment 2	Oral Examination.	Week.	15
Assessment 3	Written Examination	Week	15
Assessment 4	Quiz Examination	Week	6
Assessment 5	Semester Work	Week	13

#### Weighting of Assessments

Written Examination	50 %
Oral Examination.	20 %
Practical Examination	20 %
Semester Work	5 %
Quiz Examination	5 %
Total	100%

#### 6- List of References

##### 6.1- Course Notes

A concise guide of Metabolism

##### 6.2- Essential Books (Text Books)

*Devlin, T.M.(1993):* Textbook of Biochemistry: With Clinical Correlation. 3rd ed. (4th printing). Wiley-Liss: A John Wiley & Sons, Inc., Publication: New York,

*Murray, R.K.; Granner, D.K.; Mayes, P.A. and Rodwell, V.W. (1996):* Harper's of Biochemistry. 24th ed. Appleton & Lange. Norwalk, Connecticut, Loss Atlos, California.



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*Zilva, M.; Charles, F. and Myne, N. (1993):* Clinical Chemistry in Diagnosis and Treatment. 6th ed. Saunders, Philadelphia, U.S.A.

### **6.3- Recommended Books**

*Bakry, M.A. (1995):* Review of Medical Biochemistry. 3rd ed.

*Khalifa, A. (1997):* Biochemistry for Medical Students. Fac. of Med., Ain Shams Univ.

*Salah, E. (1993):* Medical Biochemistry. 2nd ed. Fac. of Med., Ain Shams Univ.

*Zahrán, M.A. (1994):* Lectures on Medical Biochemistry. Alexandria Univ.

### **6.4- Periodicals, Web Sites, ... etc**

Journal of Biochemistry

American Journal of Biochemical Association.

American Journal of Veterinary Research.

### **7- Facilities Required for Teaching and Learning**

- Biochemistry laboratory.
- Routine Biochemical kit.
- The Faculty central lab.
- Computer and internet lab.

**Course Coordinator: Prof Dr. Hussien Abd Al-Maksoud**

**Head of Department: Prof Dr. Hussien Abd Al-Maksoud**

**Date:**



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## **Animal and Poultry Behavior and Management ( A )**

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given : **Bachelor of Veterinary Medical Science.**

Department offering the course : **Animal Hygiene, Behaviour and Management.**

Academic year / level : **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 2/10/2009)

### **A-Basic information**

**Title : Animal behaviour and management**  
**Lecture: 3 hours**

**Code: Vet 00625 a**

**Practical : 3 hours**

**Total: 6 hours/week**

### **B-Professional information**

#### **1-Overall aims of course :**

The aim of course is to provide the students with a basis education in the field of the behaviour of animals in their natural environments and controlling their lives with care, attentive and accurate manner. Provide the students with an overview on general behaviour, behaviour and management of horse, behaviour and management of cattle and buffalo, behaviour and management of camel, behaviour and management of sheep & goat.

#### **2-Intended Learning Outcomes of Course (ILOs).**

##### **a-Knowledge and understanding :**

Graduates of veterinary medical program must acquire the following knowledge and understanding in course of animal and poultry behaviour and management

- 1) Comprehend The basics of normal behaviour, management and health maintenance of domestic animals (horse, cattle, buffalo, camel, sheep and goat).



- 
- 2) Familiarize with the principles of welfare , production and health maintenance of food producing animals and sporting animals
  - 3) Know the basics of laws and ethical codes relevant to animals and food hygiene.
  - 4) Recognize animal welfare which in turn will be reflected in form of high performance and productivity of the animal.
  - 5) Describe which is going within the animal mind and understand the body language in order to fulfill all the reasonable useful requirements of the animals
  - 6) Summarize the actual aetiological factors which can induce behavioural disorders or vices
  - 7) Familiarize with handling and restraint of different domestic and dangerous animal .
  - 8) Realize the proper management of horse , cattle , buffalo, camel, sheep and goat which in turn will be reflected in the form of high performance and productivity of the animal and safety of the animal care stuff.
  - 9) Enumerate the different behavioural disorders of horse , cattle , buffalo, sheep and goats.
  - 10) List freedoms of animals in order to avoid suffering and sustain fitness.
  - 11) Relate the environmental condition with different behaviour of animals

**b- Intellectual skills:**

**Graduates must have the ability to**

- 1- Assess the diagnosis of abnormal behaviour in horse, cattle, buffalo, camel, sheep and goats
- 2-Judge the body language of horse, cattle, buffalo, camel, sheep and goats
- 3-Design new housing system which permit animals to grow , mature reproduce and maintain good health.
- 4-Develop new method for effective restraint of domestic animals
- 5-Create new methods to control and prevent behavioural disorders in horse, cattle, buffalo, camel, sheep and goats
- 6-Invent new instruments and devices used for treatment of behavioural disorders in animals
- 7-Modify systems of management in order to obtain high performance and productivity
- 8-Assess and criticize , how data given in animal behaviour are derived
- 9-Analyze the body language of horse, cattle, buffalo, camel, sheep and goats



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**In order to fulfill the useful requirements of the animals.**

**C-Practical and professional skills**

Graduates must be attain the capacity to:

- 1-Employ all the gained knowledge and understanding in animal behaviour in skillful pattern
- 2-Safely , correctly and humanely restrain animals for examination
- 3-Obtain the history of the case whether it is of an individual animal or a group of animals
- 4-Perform physical examination of animals for signs of health
- 5-Write a report about soundness of animals
- 6-Write a certificate about imported and exported animals.
- 7-Read a pedigree in farmed animals
- 8-Assess and advice about animal management and reproductive efficiency
- 9-Gain skillfully and appropriately use new information in the field of animal behaviour
- 10-Utilize appropriate safety procedures to protect clients and Co-workers.
- 11-Scan the actual etiological factors which can induce behavioural disorders in animals.
- 12-Solve the different behavioural disorders or vices in horse, cattle, buffalo, camel, sheep and goats

**D-General and transferable skills:**

**Graduates must have the ability to**

- 1-Work under pressure and / or contradictory condition in contain codes.
- 2-Communicate verbally and non-verball with lecturers and class-mates
- 3-Conduct research papers and project
- 4-Utilize computer and internet skills
- 5-Present a scientific study about animal behaviour

6-Function in a multidisciplinary team during conducting a research paper

7-Search about new information in animal behaviour and management

8-Interact with other graduates all over the world.

### 3-Contents :

Topic	No. of hours	Lecture	Practical
1- General behaviour	5	5	-
2-Behaviour and management of horse	12	12	-
3- Behaviour and management of cattle and buffalo	12	12	-
4- Behaviour and management of camel	6	6	-
5-Behaviour and management of sheep & goat	10	10	-
6-Points of the farm animals	6	-	6
7- Types of restraint	14	-	14
8-Grooming of animals	4	-	4
9- Clipping of animals	4	-	4
10- Washing of animals	4	-	4
11-Clothing of animals	4	-	4
12-Bedding	3	-	3
13-Animal identification	6	-	6
<b>Total</b>	<b>90</b>	<b>45</b>	<b>45</b>

### 4-Teaching and learning methods:

Lectures, farm visits and practical sessions in which the following facilities are used:

4.1- Farm animals.

4.2-Slides

4.3 CD

4.4 Demonstration of instruments used for restraint of animals, grooming,

clipping, clothing & animal Identification.

### -Student assessment methods :

5.1- Mid term exam to assess knowledge and intellectual skills.

5.2- Practical exam to assess professional and practical skills.



5.3- Oral exam to assess knowledge, understanding and transferable skills.

5.4- Written examination to assess knowledge and intellectual skills

**Assessment Schedule :**

Assessment 1	Mid term examination	4,6,8,10	Week.
Assessment 2	Practical examination	13	Week.
Assessment 3	Oral examination	15	Week
Assessment 4	Written examination	15	Week

**Weighting of assessments :**

Mid-term examination	5%
Final-term examination	50%
Oral examination	20%
Practical examination	20%
Semester work	5%
Other types of assessment	0%
Total	100%

**6-List of references**

**6.1- Course notes:**

A concise guide of animal and poultry behaviour and management

**6.2- Essential books ( Textbooks)**

- 1- Fraser, A.F. (1980): Farm Animal Behaviour.
- 2- Fraser, A.F. (1990): Farm Animal Behaviour and Welfare.
- 3- Hurnike , J.F (1988): Welfare of Farm Animals.
- 4- Katie, and Alistair, F. (1988). The Complete Book of Raising Livestock and Poultry.
- 5- Richard , A.B. and Vernon, B.M. (1987): I land Book of Livestock Management.
- 6- Rathore, G.S. (1986): Camels and Their Management.
- 7- Ronald, S.A. and Andrew, T.B. (1991): Practical Animal Handling.
- 8- William, C.M. and Robertson, E.D. (1952): Practical Animal Husbandry.



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**6.3-Recommended books:**

- 1- Richard, A.B. (1998): Handbook of Livestock Management Techniques.
- 2- William J. and Trevar, R. (1999): An Introduction to Animal Husbandry in The Tropics.
- 3- Keeling L.J. and Gonyou, FI.W. (2001): Social Behaviour in Farm Animals.

**6.4 Periodicals, web sites, ... etc.**

- 1- Applied Animal Behaviour Science.
- 2- Veterinary Records.

**7-Facilities required for teaching and learning:**

- 1- Farm animals.
- 2-Data show and computer lab.
- 3-Laboratory animals.
- 4- Different types of instruments for restraint of animals.

**Course Coordinator:**

**Prof Dr Mohamed Morsy Karosa**

**Head of the Department:**

**Prof.Dr. Mohamed Morsy Karosa**

**Date:**





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## **Animal and Poultry Behavior and Management ( B )**

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given : **Bachelor of Veterinary Medical Science.**

Department offering the course: **Animal Hygiene, Behaviour and Management.**

Academic year / level : **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 2/10/2009)

### **A-Basic information**

**Title : Animal behavior and management      Code: Vet 00625 b**  
**Lecture: 3 hours      Practical : 3 hours      Total: 6 hours/week**

### **B-Professional information**

#### **1-Overall aims of course :**

The aim of course is to provide the students with a basis education in the field of the behavior of animals in their natural environments and controlling their lives with care, attentive and accurate manner. Provide the students with an overview on behavior and management of poultry (fowl, ducks, geese, turkey, quail, pigeon, ostrich), cat, dog, laboratory animals.

#### **2-Intended Learning Outcomes of Course (ILOs)**

##### **a-Knowledge and understanding :**

After successful completion of this course the students should have the ability to:-

- a1) Knowledge of animal behavior for establishing the optimum environmental conditions which are suitable for the particular behavior of the animal.



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- a2) The basis knowledge for manipulation and restraint of animals.
- a3) Knowledge of the proper management of poultry (fowl, geese, turkey, quail, pigeon, ostrich), cat, dog, laboratory animals which in turn will be reflected in the form of high performance and productivity of the animal and safety of the animal care staff.

### **B- Intellectual skills:**

After successful completion of this course the students should have the ability to:-

- b1- Knowledge of what is going within the animal mind .
- b2-Knowledge of the body language of poultry (fowl, ducks, geese, turkey, quail, pigeon, ostrich), cat, dog, laboratory animals in order to fulfill all the useful requirements of the animal.
- b3-Knowledge of the diagnosis of abnormal behavior in poultry (fowl, ducks, geese, turkey, quail, pigeon, ostrich), cat, dog, laboratory animals in order to fulfill all the useful requirements of the animal.

### **C- Professional and practical skills:**

After successful completion of this course the students should have the ability to:-

- c<sub>1</sub>. Examine and treat the animals.
- c<sub>2</sub>-Examine the actual etiological factors which can induce.  
behavioral disorders in horse, cattle, buffalo, camel sheep & goat.

### **D-General and transferable skills:**

- d<sub>1</sub>-Knowledge of the animal mood.
- d<sub>2</sub>- Presentation of a scientific study .
- d<sub>3</sub>- Able to achieve animal welfare.





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**Assessment Schedule :**

Assessment 1	Mid term examination	4,6,8,10	Week.
Assessment 2	Practical examination	13	Week.
Assessment 3	Oral examination	15	Week
Assessment 4	Written examination	15	Week

**Weighting of assessments :**

Mid-term examination	5%
Final-term examination	50%
Oral examination	20%
Practical examination	20%
Semester work	5%
Other types of assessment	0%
Total	100%

**6-List of references**

**6.1- Course notes:**

A concise guide of animal and poultry behavior and management

**6.2- Essential books ( Text books)**

- 1- Fraser, A.F. (1980): Farm Animal Behavior.
- 2- Fraser, A.F. (1990): Farm Animal Behavior and Welfare.
- 3- Hurnike , J.F (1988): Welfare of Farm Animals.
- 4- Katie, and Alistair, F. (1988). The Complete Book of Raising Livestock and Poultry.
- 5- Richard , A.B. and Vernon, B.M. (1987): Hand Book of Livestock Management.
- 6- Rathore, G.S. (1986): Camels and Their Management.
- 7- Ronald, S.A. and Andrew, T.B. (1991): Practical Animal Handling.
- 8- William, C.M. and Robertson, E.D. (1952): Practical Animal Husbandry.



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**6.3-Recommended books:**

- 1- Richard, A.B. (1998): Handbook of Livestock Management Techniques.
- 2- William J. and Trevar, R. (1999): An Introduction to Animal Husbandry in Tropics.
- 3- Keeling L..1. and Gonyou, H.W. (2001): Social Behavior in Farm Animals.

**6.4 Periodicals, web sites, ... etc.**

- 1- Applied Animal Behavior Science.
- 2- Veterinary Records.

**7-Facilities required for teaching and learning:**

- 1 - Farm animals.
- 2-Data show and computer lab.
- 3-Laboratory animals.
- 4- Different types of instruments for restraint of animals.

**Course Coordinator:**

**Prof Dr Mohamed Morsy Karosa**

**Head of the Department:**

**Prof.Dr. Mohamed Morsy Karosa**

Date:



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## Animal and Poultry Feeding & Malnutrition Diseases

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Department of Nutrition and Clinical Nutrition**

Academic year / Level : **2<sup>nd</sup> Year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 2/10/2008)

### **A- Basic Information**

**Title: Animal and Poultry Feeding & Malnutrition Diseases**

**Lecture: 3 hours**

**Code: Vet 00626 a**

**Practical: 2 hours**

**Total: 5 hours**

### **B- Professional Information**

#### **1 - Overall Aims of Course:**

The aim of the course is to provide the students with a basic education in the field of animal nutrition and clinical nutrition and to enable them to gain the skills and attitudes required for the practice of animal, poultry, and fish nutrition.

#### **2 - Intended Learning Outcomes of Course (ILOs)**

##### **a- Knowledge and Understanding:**

After successful completion of this course the students should have the ability to:-

- a1- Basic knowledge about animal nutrition .
- a2- Basis knowledge about poultry nutrition.
- a3- Basis knowledge about fish nutrition.

##### **b- Intellectual Skills:**

After successful completion of this course the students should have the ability to:-

- b1- Choose the method of feed preparation.
- b2- Detect different feedstuff's in ration formulation.
- b3- Determine the suitability of feedstuffs for different animal species.



**c- Professional and Practical Skills:**

After successful completion of this course the students should have the ability to:-

- c1- Apply clinical nutrition.
- c2- Judge feedstuffs adulteration.
- c3- Choose feed additives according to the kind of animal production.
- C4- Formulate a balanced ration for different domestic and wild animal species..

**d- General and Transferable Skills**

- d1- Able to be a successful member in a nutritional team for determination of a nutritional status of farm animals.
- d2- Presentation of a scientific study and case reports in the nutritional field.
- d3- Scientific nutritional technical terms.

**3- Contents**

Topic	No. of hours	Lecture	Practical
Body composition, GIT, and nutrient utilization.	6	6	-
Water	3	3	
The carbohydrates and its metabolism	5	5	-
The proteins and its metabolism	5	5	-
The lipids and its metabolism	5	5	-
Bioenergetics and energy evaluation	5	5	-
Vitamins	8	8	-
Inorganic minerals	8	8	
Technical terms	4		4
Evaluation of feedstuffs	14	-	14
Classification of feedstuffs	2	-	2
Energy or basal feeds	10		10
<b>Total</b>	<b>75</b>	<b>45</b>	<b>30</b>



#### **4- Teaching and Learning Methods**

Lectures, lab sessions and seminars for:

- Demonstration of different feedstuffs.
- Demonstration of feed analytical methods.
- Demonstration of nutritional deficiency diseases of different animal species using slide projector.

#### **5- Student Assessment Methods**

- 5.1 Practical exam to assess professional and practical skills.  
5.2 Oral exam to assess knowledge, understanding , transferable and intellectual skills.  
5.3 Written exam to assess knowledge, information and intellectual skills.

#### **Assessment Schedule**

Assessment 1	Practical examination	Week	13
Assessment 2	Oral examination	Week	15
Assessment 3	Written examination	Week	15

#### **Weighting of Assessments**

Quiz Examination	0%
Written Examination	50 %
Oral Examination.	20 %
Practical Examination	30 %
Semester Work	- %
Total	100%

#### **6- List of References**

- 6.1- Course practical notes  
Part 1: Feedstuffs.  
Part 2: Ration formulation

#### **6.2- Essential Books (Text Books)**

- 1- Basic animal nutrition and feeding (W.G. Pond; D.C. Church; K.R. Pond).
- 2- Animal nutrition (P.McDonald).
- 3- Nutrient requirement of domestic animal (NRC).
- 4- Vitamins in animal nutrition (Lee Russell McDowell).
- 5- Laboratory manual for nutrition research (Gopal Krishna and S.K.han).





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### **6.3- Recommended Books**

- 1- Animal nutrition
- 2- Basic animal nutrition and feeding.

### **6.4- Periodicals, Web Sites, ... etc**

Journal of American Journal of Veterinary Medical Association.  
Nutritional abstract and review  
Veterinary bulletin.

### **7- Facilities Required for Teaching and Learning**

Slide projector  
Nutritional laboratory.  
Data show and computer lab.  
Experimental and lab animals.

**Course Coordinator: Prof. Dr. Kamelia Zahran**

**Head of Department: Prof. Dr. Kamelia Zahran**

**Date:**



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## **Animal and Poultry Nutrition**

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Department of Nutrition and Clinical Nutrition**

Academic year / Level : **2<sup>nd</sup> Year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on **25/2/2009**)

### **A- Basic Information**

**Title: Animal and Poultry Nutrition**

**Code: Vet 00626 b**

**Lecture: 3 hours**

**Practical: 2 hours**

**Total: 5 hours**

### **B- Professional Information**

#### **1 - Overall Aims of Course:**

The aim of the course is to provide the students with a basic education in the field of animal nutrition and clinical nutrition and to enable them to gain the skills and attitudes required for the practice of animal, poultry, and fish nutrition.

#### **2 - Intended Learning Outcomes of Course (ILOs)**

##### **a- Knowledge and Understanding:**

After successful completion of this course the students should have the ability to:-

- a1- Basic knowledge about animal nutrition .
- a2- Basis knowledge about poultry nutrition.
- a3- Basis knowledge about fish nutrition.

##### **b- Intellectual Skills:**

After successful completion of this course the students should have the ability to:-

- b1- Choose the method of feed preparation.
- b2- Detect different feedstuff's in ration formulation.
- b3- Determine the suitability of feedstuffs for different animal species.

**c- Professional and Practical Skills:**

After successful completion of this course the students should have the ability to:-

- c1- Apply clinical nutrition.
- c2- Judge feedstuffs adulteration.
- c3- Choose feed additives according to the kind of animal production.
- c4- Evaluate different feedstuffs.
- c5- Formulate a balanced ration for different domestic and wild animal species..

**d- General and Transferable Skills**

- d1- Able to be a successful member in a nutritional team for determination of a nutritional status of farm animals.
- d2- Presentation of a scientific study and case reports in the nutritional field.
- d3- Scientific nutritional technical terms.

**3- Contents**

<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial/Practical</b>
Feeding and nutritional standards for maintenance, growth and fattening.	4	4	-
Requirements of reproduction, lactation, work, wool and fur	8	8	-
Special feeding of dairy and beef cattle.	8	8	-
Special feeding of camel and horse	2	2	-
Special feeding of sheep and goat	3	3	-
Special feeding of rabbits, fish, and avian species	6	6	-
Special feeding of pet, laboratory, wild, and zoo animals.	6	6	-
Nutritional deficiency diseases	4	4	
Feed preparation and processing.	2	2	
Nutritional feed additives.	2	2	
Protein supplements	6	-	6
Forages	3	-	3
Roughages	2	-	2
Silage, vitamins and mineral supplements.	4	-	4
Ration formulation for different animal species.	15		15
<b>Total</b>	<b>75</b>	<b>45</b>	<b>30</b>



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#### **4- Teaching and Learning Methods**

- 4.1- Demonstration of different feedstuffs.
- 4.2- Demonstration of feed analytical methods.
- 4.3- Demonstration of nutritional deficiency diseases of different animal species using slide projector.

#### **5- Student Assessment Methods**

- 5.1 Practical exam to assess professional and practical skills.
- 5.2 Oral exam to assess knowledge and information and intellectual skills.
- 5.3 Written exam to assess knowledge, information and intellectual skills.

#### **Assessment Schedule**

Assessment 1	Practical examination	Week	13
Assessment 2	Oral examination	week	15
Assessments	Written examination	Week	15

#### **Weighting of Assessments**

Quiz Examination	0%
Written Examination	50 %
Oral Examination.	20 %
Practical Examination	30 %
Total	100%

#### **6- List of References**

- 6.1- Course practical notes  
Part 1: Feedstuffs.  
Part 2: Ration formulation

#### **6.2- Essential Books (Text Books)**

- 1- Basic animal nutrition and feeding (W.G. Pond; D.C. Church; K.R. Pond).
- 2- Animal nutrition (P.McDonald).
- 3- Nutrient requirement of domestic animal (NRC).
- 4- Vitamins in animal nutrition (Lee Russell McDowell).
- 5- Laboratory manual for nutrition research (Gopal Krishna and S.K.han).



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**6.3- Recommended Books**

1- Animal nutrition

2- Basic animal nutrition and feeding.

**6.4- Periodicals, Web Sites, ... etc**

-Journal of American Journal of Veterinary Medical Association.

-Nutritional abstract and review

-Veterinary bulletin.

**7- Facilities Required for Teaching and Learning**

Slide projector

Nutritional laboratory.

Experimental and lab animals.

**Course Coordinator: Prof Dr. Kamelia Zahran**

**Head of Department: Prof Dr. Kamelia Zahran**

**Date:**



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## **Genetics**

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Animal Wealth Development Department**

Academic year: **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 21/5/2006)

### **A- Basic Information**

**Title : Genetics**

**Code: Vet 00627 a**

**Lecture: 30 hrs**

**Practical: 30 hrs**

**Total: 60 hrs**

### **B- Professional Information**

#### **1- Overall aims of course**

- Understand the basis of inheritance of different genetic traits.
- Provide the students with the necessary knowledge about fine structure of chromosome.
- Know and understand the genetic material, replication, expression and mutation.

#### **2- Intended learning outcomes of the course (ILO<sub>s</sub>):**

##### **a- Knowledge and understanding:**

After successful completion of this course the students should have the ability to:-

- a.1-Describe Basis of inheritance.
- a.2- Mention and Explain different mechanisms of chromosomal aberration and its reflection on phenotype of individual diseases.

##### **b- Intellectual skills**

By completion of the course the student should be able to:

- b.1-differentiate among different stages of the cell cycle microscopically including mitosis and meiosis.
- b.2- Interpret the karyotype reports.
- b.3- Recognize the chromosomal aberrations (numerical or structural).

### c- Professional and practical skills

By completion of the course the student should be able to:

- c.1- Identify chromosome number and karyotyping of different species.
- c.2- Diagnose phenotypic malformation and sterility problems associated with chromosomal aberrations.
- c.3- Identify normal and abnormal spermatogenesis through preparation of chromosome from the tests.

### d- General and transferable skills

By completion of the course the student should be able to

- d.1- Explain different methods for inheritance of traits.
- d.2- Gain experience in karyotyping for different species by using different materials (bone marrow, blood, feather bulb from chicken, kidney and gills from fish).
- d.3- Discuss and explain genetic variations.

### 3- Contents :

Topic	No. of hours	Lecture	Practical
1- Cytological basis of inheritance	8	2	6
2- Mathematical principles required for genetic problems	6	2	2
3- Transmission and quantitative genetics	8	2	6
4- Phenotypic expression	6	2	4
5- Linkage, crossing over and chromosome mapping	10	2	8
6- Some special cases of interphase chromosome	6	2	4
7- Kariological (chromosomal) studies	2	2	-
8- Chromosomal banding technique	2	2	-
9- Chromosomal aberrations: <ul style="list-style-type: none"> <li>• Numerical changes.</li> <li>• Structural changes.</li> </ul>	4	4	-
10- Sex determination	2	2	-
11- Fertility as affected by chromosome	2	2	-
12- The genetic material	2	2	-
13- DNA replication	2	2	-
14- The genetic code	2	2	-
<b>Total</b>	<b>60</b>	<b>30</b>	<b>30</b>



#### **4- Teaching and learning methods**

4.1- Lectures

4.2- Clinical and small group sessions.

- a) Microscopical demonstration of slides.
- b) Practical training for methods of karyotyping..
- c) Gene mapping by linkage studies.
- d) Restriction mapping.

4.3- CD's-slides and video tapes.

Demonstration of instruments used in genetic engineering like PCR,  
DNA sequencing and DNA electrophoretic system.

4.4- Experimental animal and tissue culture.

#### **5- Student assessment methods**

5.1- Written examination for assessment of knowledge and understanding.

5.2- Oral examination for assessment of understanding, intellectual and transferable skills.

5.3- Practical sheet examination for assessment of understanding of the theoretical part of the practical course.

5.4- Microscopical slides examination for assessment practical and intellectual skills.

#### **Assessment schedule**

Assessment 1	Written examination	15	Week
Assessment 2	Oral examination	15	Week
Assessment 3	Practical examination	13	Week.
Assessment 4	Mid term examination	6,10	Week.

#### **Weighting of assessment**

Mid-term examination	5 %
Final examination	50%
Oral examination	20%
Practical examination	20%
Semester work	5%
Other types of assessments	0%
Total	100%





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## **6- List of references**

**6.1- Department books:** available for students to purchase from book shops in front of the faculty.

**6.2- Essential books (Text books):** Concept of genetics “William, Michael, Charlot 2006”.

- Genetics “P.S. Verma, V.K. Aggarwal 2006”.
- Cytogenetics “S. Sundara Rajan 2005”.
- Genetic of population “ Philip W.H. 2006”.

**6.3- Periodicals, Web sites, . . . etc.**

- www. Pubmed.com
- Journal of Animal Science.
- Genetics Journal.
- Genomic Journal.

## **7- Facilities required for teaching and learning**

7.1. Lecture Hall: writing board, over head and slide projector and Data show.

7.2. Genetics Lab.

7.3. Experimental and Lab. Animals.

**Course coordinator: Prof. Dr. Shabaan Abd-Elatif hameda**

**Head of the department: Prof. Dr. Hatem H. El-Bakry**

**Date :**



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## **Genetic Engineering**

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Animal Wealth Development Department**

Academic year: **2<sup>nd</sup> year**

Date of specification approval: Ministerial Decree No 921, on 15/9/1987.

( Then approved in this recent template by department council on 12/3/2006)

### **A- Basic Information**

**Title : Genetic Engineering**

**Code: Vet 00627 b**

**Lecture: 30 hrs**

**Practical: 30 hrs**

**Total: 60 hrs**

### **B- Professional Information**

#### **1- Overall aims of course**

Provide the student the knowledge about recombinant DNA and genetic engineering, the knowledge about genetic manipulation and methods for studying the genome.

#### **2- Intended learning outcomes of the course (ILO<sub>s</sub>):**

##### **a- Knowledge and understanding**

By completion of the course the student should be able to

- a.1- Understand the characteristics of genetic material and different methods of its manifestation and applications (PCR, REFLP . . . . etc).
- a.2- Know the relationship between the genetic material, diseases, immunity and the genetic control of them.

##### **b- Intellectual skills**

By completion of the course the student should be able to

- b.1- Solve different genetic problems.
- b.2- Use and understand different method of biotechnology in several fields like, medicine, diagnosis of different diseases, pharmaceuticals production and animal wealth development.
- b.3- Use genetics as a tool for control of inherited diseases.



### c- Professional and practical skills

By completion of the course the student should be able to

- c.1- Use of genetic material (chromosome and DNA) as a tool to measure genotoxicity of different environmental pollutants.
- c.2- Detect similarities and differences between different species based on DNA polymorphism.

### d- General and transferable skills

- d.1- Sexing of animal spp.
- d.2- Isolation of DNA from different tissues.
- d.3- Internet searching .

Topic	No. of hours	Lecture	Practical
1- Kariological (chromosomal) studies	6	-	6
2 -Chromosomal banding technique	6	-	6
3 -Chromosomal aberrations: • Numerical changes. • Structural changes.	6	-	6
4 -Sex determination	4	-	4
5 -Fertility as affected by chromosome	-	-	-
6 -The genetic material	-	-	-
7 -DNA replication	-	-	-
8 -The genetic code	-	-	-
9 -Genetic expression	4	4	-
10-Regulation of protein synthesis	2	2	-
11 -Mutation and DNA repair mechanism	4	4	-
12 -The genetic manipulation	8	4	4
13 -Recombinant DNA and genetic engineering	8	4	4
14-Methods for studying the genome	4	4	-
15-Inherited diseases of biochemical origin	2	2	-
16-immunogenetics	2	2	-
17-Genetic resistance and pathogens	2	2	-
18-Control of inherited diseases	2	2	-
<b>Total</b>	<b>60</b>	<b>30</b>	<b>30</b>



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#### **4- Teaching and learning methods**

4.1- Lectures

4.2- Clinical and small group sessions.

- e) Microscopical demonstration of slides.
- f) Practical training for methods of karyotyping.
- g) General experimental tests teaching.
- h) Gene mapping by linkage studies.
- i) Restriction mapping.

4.3- CD's-slides and video tapes.

Demonstration of instruments used in genetic engineering like PCR,  
DNA sequencing and DNA electrophoretic system.

4.4- Experimental animal and tissue culture.

#### **5- Student assessment methods**

5.1- Written exam to assess knowledge and understanding.

5.2- Oral exam to assess understanding, intellectual and transferable skills.

5.3- Practical sheet examination for assessment of the theoretical part of the  
practical course.

5.4- Microscopical slides examination for assessment of practical and  
intellectual skills.

#### **Assessment schedule**

Assessment 1	Written examination	15	Week
Assessment 2	Oral examination	15	Week
Assessment 3	Practical examination	13	Week.
Assessment 4	Mid term examination	6,10	Week.

#### **Weighting of assessment**

Mid-term examination	5 %
Final examination	50%
Oral examination	20%
Practical examination	20%
Semester work	5%
Other types of assessments	0%
Total	100%

#### **6- List of references**

##### **6.1- Department books:**

Course note is available for the students to purchase from book shops.



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**6.2- Essential books (Text books):**

- Concept of genetics “William, Michael, Charlot 2006”.
- Genetics “P.S. Verma, V.K. Aggarwal 2006”.
- Cytogenetics “S. Sundara Rajan 2005”.
- Genetic of population “ Philip W.H. 2006”.

**6.3- Periodicals, Web sites, . . . etc.**

- www. Pubmed.com
- Journal of Animal Science.
- Genetics Journal.
- Genomic Journal.

**7- Facilities required for teaching and learning**

- 7.1. Lecture Hall: writing board, over head and slide projector are available. Data show is available with prior arrangements.
- 7.2. Genetics Lab.
- 7.3. Experimental and Lab. Animals.

**Course coordinator: Prof. Dr. Shabaan Abd-Elatif hameda**

**Head of department: Prof. Dr. Hatem H. El-Bakry**

**Date :**