



Beni Suef University
Faculty of Veterinary Medicine
Department of Pathology

Program Specification for Master Degree
2017-2018

A-Basic information:

- 1- Program title:** *MVSC*
- 2- Program type:** *Single*
- 3- Department offering program:** *Pathology*
- 4-Academic year:** *2017-2018*
- 5-Approval date of Department Council:**
- 6-Approval date of Faculty Council:**
- 7-External evaluator:**

B-Professional information:

1- Overall aims of the program:

- 1-Use efficiently the most recent techniques and improve the skills of scientific research.
- 2-Collect, manage and analyze the scientific data in veterinary pathology practice.
- 3-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.
- 4- Detect and solve the veterinary and environmental problems based on scientific and pathological research evidence.
- 5-Write the dissertation, scientific papers and applies for scientific projects.
- 6-Recognize the fundamentals of pathology of tumors, pathology of microbial diseases, Pathology of parasitic diseases, Pathology of deficiency diseases, and Environmental Pathology.
- 7-Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.
- 8-Identify Pathological changes in relation to viral, bacterial, mycotic and parasitic infectious diseases as well nutritional disorders in poultry

9-Identify fish morphology and tissue reactions against injuries as well as identify the lesions and diseases of experimental animals that can interfere with results and their interpretation or seriously affect any experimental animal.

10-Have a commitment to veterinary professional practice regulations and ethics.

Intended learning outcomes of course (ILOs):

a- Knowledge and understanding:

By the end of the Master program, the postgraduate should be able to:

a1- Acquire the advanced concepts in pathology practice and other career related sciences.

a2- Recall Knowledge about cellular response of the living body when exposed to injurious agent.

a3- Distinguish the pathological professional practice and its relation to environmental protection and developing.

a4- Identify efficiently veterinary pathology professional practice regulations and ethics.

a5-Characterize quality principles and basics in veterinary pathology professional practice.

b- Intellectual skills:

By the end of the Master program, the postgraduate should be able to:

b1- Identify , conceptualize and define research problems and questions (Thesis only)

b2-Evaluate their own research data and develop new approach to solving their research questions (thesis)

b3- Develop creative approaches to solving technical problems or issues associate with running and researches project.

b4- Specialized problem-solving based on the available data

b5-Design a scientific research plan.

b6- Risk assessment in professional practice and planning for the development of performance in the area of pathology

b7- Making career decisions in the contexts of different professional problems

b8- Innovate and Creativity

b9- Discriminate between tissue/organ appearance in health and diseased animals, birds, and fish.

b10-Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools.

b11- Integrate the pathological alterations with injurious agents

c- Professional and practical skills:

By the end of the Master program, the postgraduate should be able to:

- c1- Perform experimental design and analysis to their own research project .
- c2- Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c5- Write a report commenting on a pathological specimens.
- c6- Evaluate the available and required material, tools and equipment in veterinary research projects.
- c7 -Write efficiently scientific paper and dissertation.

d- General and transferable skills:

By the end of the Master program, the postgraduate should be able to:

- d.1-Communicate effectively in its different forms
- d.2-Use of information technology to serve the development of professional practice
- d.3-Teach others and evaluate their performance
- d.4-Self-assessment and continuous learning
- d.5- Mange time efficiently and work in research groups
- d.6-Lead a team work in different professional practice.

2- Academic standers:

- * The faculty mission, vision and strategic objective are confirmed to the academic standard. The learning outcomes are inline with the department and the faculty mission.
- * Postgraduates NARS (March 2009) Master degree chapter issued by national authority for quality assurance and accreditation of education (NAQAAE) and Veterinary medicine post graduate academic standards (ARS) for the faculty of veterinary medicine, Beni-Suef University, Beni-Suef, Egypt are selected to confirm the appropriateness of the academic standards .

4- Program Structure and Contents

A- Program duration: At least two academic years from the approval of registration by the Faculty Council and maximum four years. The faculty council has the right to give the applicant another period not exceed two years according to the supervisor request

The first year for preliminary courses study, while the second year for researches and preparation of the Master Thesis.

B- Program structure: Hours/ week:

Basic course:-

Theoretical	2	Practical	2	Total	4
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Subsidiary courses:-

Theoretical	1-2	Practical	1-2	Total	2-4
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☒ **Master Thesis: completed during the second academic year.**

C- Program courses:**1- Basic courses**

Code	Course title	Hours /week		Academic year	Teaching duration
		theoretical	practical		
	Master Principal course	3	4	Preliminary year	36 weeks
	Research methods	1	3	Preliminary year	36 weeks

2-subsidiary courses

Code	Course title	Hours /week		Academic year	Semester
		Theoretical	practical		
	Selected (1-3) courses depending on the thesis title from the various Faculty Master courses other than specialty of the Master.	1-6	1-6	Preliminary year	36 weeks

D- Courses contents

See master courses specification

5- Program Admission Requirements

a- According to the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduate Programs, applicants should have BVSc., from an Egyptian University or

equivalent degree from any approved university, with at least general grade (Good) and (Very Good) in the specialized subject.

b- Also if the student has postgraduate diploma in one specialization of total (3 hours) at least with general grade (Good) and (Very good) in the specialized subject.

c- According to Beni-Suef University requirements, all applicants for postgraduate studies should fulfill preliminary courses on the following subjects:

1- English language (Toefl or equivalent degree)

2- Computer skills (ICDL) or equivalent computer course.

d- Admission to the program is open during March and September annually after at least one year from the BVSc degree.

6. Regulations for Progression and Program Completion

After finishing the preliminary courses, the graduate student will be eligible to sit for the examination according to the following roles:

No. of course teaching hours/ week	Allowed time for written exam.	Degree	
		Theoretical	Practical and oral exam
≥ 3 hours	3 hours	50	50
≤ 3 hours	2 hours	25	25

- It is mandatory to pass all the courses each chance except biostatic (212)

-The passing mark in each exam is $\geq 60\%$.

-The faculty council has the right to deprive the applicant from entering the exams if his attendance courses is less than 75% .

Qualification grades:

Excellent	≥ 90
Very good	≥ 80
Good	≥ 70
Pass	≥ 60
Failed	45 to less than 60 weak
	Less than 45 Very weak

-After passing, the graduate starts research for Master Thesis at the beginning of the second year.

-The candidate will receive his degree after evaluating and approving the thesis by a committee according to University regulations.

-The applicant should publish at least two scientific papers from the thesis in local or international journals

7-Graduate student assessment

A: Assessment Tools

According the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduate, students should be assessed at the end of preliminary year and the thesis should be evaluated and approved by a committee according to University regulations.

1-Preliminary year

Assessments methods for each course	practical exam	Oral exam	Written exam
Time of Assessments	By the end of the year	By the end of the year	By the end of the year
Marks	25	25	50

2-Master Thesis:

All master-degree students should prepare a thesis in pathology the department council must approve the protocol (plan) of the research. The thesis is supervised by one or more staff members and may include other specialties according to the nature of the research. The thesis should be evaluated and approved by a committee according to University regulations. The applicant should publish at least one scientific paper from the thesis in local or international journals

B- Matrix alignment of the measured ILOs

Assessments methods	Matrix alignment of the measured ILOs			
	K&U (a)	I.S (b)	P&P. S (c)	G&T. S (d)
Written exam	A2,a 5	B1,b2,b4,b6,b9	C1,c4,c7	D4,D5
Practical exam	A1,a3,a4	B3,B8,b10,b11	C2,c3,c5,c6	D5
Oral exam	a2, a5	B1,b2,b4,b6,b9	C1,c4,c7	D4,d5

Course coordinator

Head of the Department

Dr. Nesreen Mohamed Safwat

Prof. Dr. Khalid El-Nesr

Lecturer of Pathology

Head of Pathology department

Master Program Specification Matrix (Program Courses with ILOS)

Program ILOs		courses
Knowledge and understanding	a1	Master basic course, thesis, and 60-72
	a2	Master basic course, thesis, and 60-72
	a3	64
	a4	68, 64
	a5	Master basic course
Intellectual skills	b1	Thesis
	b2	Thesis
	b3	Thesis , 68
	b4	Thesis
	b5	Thesis
	B6	Thesis
	B7	Thesis ,59-72
	B8	Thesis ,68
	B9	Thesis ,66,67
	B10	Thesis ,60-72
	B11	Thesis ,62,63,64,65,66,67,68,69,70,71,72
Professional and practical skills	c1	Thesis , 68
	c2	Thesis , 60-72
	c3	Thesis ,59-72
	c4	Thesis , 60-72
	c5	Thesis , 60-72
	C6	Thesis , 59-72
	C7	Thesis , 59-72
General and transferable skills	d1	Thesis , 59-72
	d2	Thesis ,59-72
	d3	Thesis , 59-72
	d4	Thesis ,59-72
	d5	Thesis ,68
	D6	Thesis ,68

Program course ILOs matrix

Academic standers Program ILOs		Knowledge and understanding						Intellectual skills							Professional and practical skills				General and transferable skills					
		a 1	a 2	a 3	a 4	a5	a6	b 1	b 2	b 3	b4	b 5	b6	B 7	c1	c2	c3	c4	d1	d2	d3	d4	d5	D6
Knowledge and understanding	a1	x																						
	a2						x																	
	a3		x																					
	a4				x																			
	a5					x																		
Intellectual skills	b1									x														
	b2							x																
	b3									x														
	b4								x															
	b5										x													
	B6											x												
	B7								x															
	B8													x										
	B9									x														
	B10									x														
	B11									x														
Professional and practical skills	c1														x									
	c2																x							
	c3																	x						
	c4																		x					
	c5																x							
	C6																	x						

General and transferable skills	d1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Program aims – ILOS Matrix for the Master program (M. V. Sc)

Program aims		Program aims									
		1. Use efficiently the most recent techniques and improve the skills of scientific research.	2. Collect, manage and analyze the scientific data in veterinary pathology practice.	3. Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.	4. Detect and solve the veterinary and environmental problems based on scientific and pathological research evidence..	5. Write the dissertation, scientific papers and applies for scientific projects.	6. Recognize the fundamentals of pathology of tumors, pathology of microbial diseases, Pathology of parasitic diseases, Pathology of deficiency diseases, and Environmental Pathology.	7. Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.	8. Identify Pathological changes in relation to viral, bacterial, mycotic and parasitic infectious diseases as well nutritional disorders in poultry	9. Identify fish morphology and tissue reactions against injuries as well as identify the lesions and diseases of experimental animals that can interfere with results and their interpretation or seriously affect any experimental animal.	10. Have a commitment to veterinary professional practice regulations and ethics.
Program ILOS											
Knowledge and understanding	a1- Acquire the advanced concepts in pathology practice and other career related sciences.	√	√	√		√					
	a2- Recall Knowledge about cellular response of the living body when exposed to injurious agent.	√					√				
	a3- Distinguish the pathological professional practice and its relation to environmental protection and developing.		√			√		√			
	a4- Identify efficiently veterinary pathology professional practice			√							

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		1. Use efficiently the most recent techniques and improve the skills of scientific research.	2. Collect, manage and analyze the scientific data in veterinary pathology practice.	3. Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.	4. Detect and solve the veterinary and environmental problems based on scientific and pathological research evidence..	5. Write the dissertation, scientific papers and applies for scientific projects.	6. Recognize the fundamentals of pathology of tumors, pathology of microbial diseases, Pathology of parasitic diseases, Pathology of deficiency diseases, and Environmental Pathology.	7. Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.	8. Identify Pathological changes in relation to viral, bacterial, mycotic and parasitic infectious diseases as well nutritional disorders in poultry	9. Identify fish morphology and tissue reactions against injuries as well as identify the lesions and diseases of experimental animals that can interfere with results and their interpretation or seriously affect any experimental animal.	10. Have a commitment to veterinary professional practice regulations and ethics.
Program ILOS											
	regulations and ethics.										
	a5- Characterize quality principles and basics in veterinary pathology professional practice.	√	√		√		√				
Intellectual skills	b1 Identify , conceptualize and define research problems and questions.			√	√	√					
	b2- Evaluate their own research data and develop new approach to solving their research questions.			√	√	√					
	b3- Develop creative approaches to solving technical problems or issues associate with running and researches project.	√		√	√	√					

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		1. Use efficiently the most recent techniques and improve the skills of scientific research.	2. Collect, manage and analyze the scientific data in veterinary pathology practice.	3. Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.	4. Detect and solve the veterinary and environmental problems based on scientific and pathological research evidence..	5. Write the dissertation, scientific papers and applies for scientific projects.	6. Recognize the fundamentals of pathology of tumors, pathology of microbial diseases, Pathology of parasitic diseases, Pathology of deficiency diseases, and Environmental Pathology.	7. Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.	8. Identify Pathological changes in relation to viral, bacterial, mycotic and parasitic infectious diseases as well nutritional disorders in poultry	9. Identify fish morphology and tissue reactions against injuries as well as identify the lesions and diseases of experimental animals that can interfere with results and their interpretation or seriously affect any experimental animal.	10. Have a commitment to veterinary professional practice regulations and ethics.
	b4- Specialized problem-solving based on the available data							√	√	√	√
	b5- Design a scientific research plan.		√				√				
	b6- Risk assessment in professional practice and planning for the development of performance in the area of pathology	√	√		√	√					
	b7- Making career decisions in the contexts of different professional problems						√				
	b8- Innovate and Creativity						√				
	b9- Discriminate between tissue/organ appearance in health and diseased animals, birds, and fish.										

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		1. Use efficiently the most recent techniques and improve the skills of scientific research.	2. Collect, manage and analyze the scientific data in veterinary pathology practice.	3. Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.	4. Detect and solve the veterinary and environmental problems based on scientific and pathological research evidence..	5. Write the dissertation, scientific papers and applies for scientific projects.	6. Recognize the fundamentals of pathology of tumors, pathology of microbial diseases, Pathology of parasitic diseases, Pathology of deficiency diseases, and Environmental Pathology.	7. Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.	8. Identify changes in relation to viral, bacterial, mycotic and parasitic infectious diseases as well nutritional disorders in poultry	9. Identify fish morphology and tissue reactions against injuries as well as identify the lesions and diseases of experimental animals that can interfere with results and their interpretation or seriously affect any experimental animal.	10. Have a commitment to veterinary professional practice regulations and ethics.
Program ILOS											
	b10-Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools.						√				
	b11- Integrate the pathological alterations with injurious agents					√					
Practical and professional skills	c1- Perform experimental design and analysis to their own research project .			√	√	√					√
	c2- Select the necessary techniques for sample reception & processing according to the nature of specimen received.	√	√	√	√	√					
	c3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques		√	√			√				
	c4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques	√		√	√	√					

Program aims		Program aims									
		1. Use efficiently the most recent techniques and improve the skills of scientific research.	2. Collect, manage and analyze the scientific data in veterinary pathology practice.	3. Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.	4. Detect and solve the veterinary and environmental problems based on scientific and pathological research evidence..	5. Write the dissertation, scientific papers and applies for scientific projects.	6. Recognize the fundamentals of pathology of tumors, pathology of microbial diseases, Pathology of parasitic diseases, Pathology of deficiency diseases, and Environmental Pathology.	7. Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.	8. Identify Pathological changes in relation to viral, bacterial, mycotic and parasitic infectious diseases as well nutritional disorders in poultry	9. Identify fish morphology and tissue reactions against injuries as well as identify the lesions and diseases of experimental animals that can interfere with results and their interpretation or seriously affect any experimental animal.	10. Have a commitment to veterinary professional practice regulations and ethics.
Program ILOS											
	c5 Write a report commenting on a pathological specimens.			√	√	√		√		√	√
	c6- Evaluate the available and required material, tools and equipment in veterinary research projects.			√	√	√					
	c7- Write efficiently scientific paper and dissertation.							√	√	√	√
General and transferable	d1- Communicate effectively in its different forms		√					√		√	√
	d2- Use of information technology to serve the development of professional practice		√					√			√
	d3- Teach others and evaluate their performance		√					√	√		√
	d4- Self-assessment and continuous learning							√			√
	d5- Manage time efficiently and work in research groups								√		√
	d6- Lead a team work in different professional practice work.								√		√



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

1-Basic information

Course Code:	MBC-PATH
Course title :	Master basic course of pathology
Program title:	Master programme of veterinary medical science
Degree:	Master
Contact hours/ week	7 hours per week (3hr theoretical and 4hr practical).
Date of course approval:	/9/2018

2-Professional information

Overall aims of course:

This course aims to:

- 1- Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.
- 2- Identify the pathological lesions and Pathogenesis and tissue reaction to infectious agents by advanced aids.
- 3- aware with tissue specimen's preparations and full description to macroscopic and microscopic pathological changes
- 4- Proficiency basics of research methodologies and scientific.
- 5- Continuing work on the addition of knowledge in the area of genital pathology.
- 6- Application of the analytical and advanced techniques in histopathology-based diagnosis.
- 7- Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
- 8- Show deep awareness of current problems and new theories in the area of genital pathology and find innovative solutions to solve them
- 9-Commitment to continuing self-development and transfer of knowledge and experience to others
- 10- Decision-making in light of available information

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a.1. acquire theories and the basics of modern knowledge in the field of genital pathology
- a.2. Recall the fundamentals and methodologies and ethics of scientific research and the various tools
- a.3. Illustrate the pathogenesis of the disease
- a.4. Recall Knowledge about the molecular and cellular response of the living body when exposed to injurious agent
- a.5. Outline the relationship between causes and tissue/organ changes.
- a.6. Record the macroscopic and microscopic alterations.
- a.7. Describe the macroscopic & microscopic tissue changes during diseases.
- a.8. Recognize knowledge about typing and classification of different



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

tissue/organ changes.

- a.9. Identify The legal and ethical principles for professional practice in the area of genital pathology
- a.10. The principles and basics of quality in professional practice in the area of genital pathology.
- a.11. Knowledge about the effects on the environment of professional practice and methods of development.
- a.12. Define the specialist subjects, including a command of literature in the field of genital pathology.
- a.13. Discuss the importance of information technology in scientific research.
- a.14. Describe the molecular basis (molecular pathology) of common genital diseases.

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of genital pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 - The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of genital pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and diseased birds.
- b.10 - Differentiate between the different pathological alterations
- b.11- Score the macroscopic and microscopic pathological lesions
- b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13- Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

- c.1- Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c.2- Examine and identify the macroscopic criteria of the pathological alterations.
- c.3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c.5- Write a report commenting on a pathological specimens



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Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

- c.6- Proficiency basic professional skills and modern techniques in the area of genital pathology
- c.7- Writing and evaluation of professional reports
- c.8- Evaluation and development of existing methods and tools in the area of genital pathology
- c.9 - The use of technological means to serve the professional practice
- c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

- d.1- Effective communication in its different forms
- d.2 - Use of information technology to serve the development of professional practice
- d.3- Teaching others and evaluate their performance
- d.4- Self-assessment and continuous learning
- d.5- The use of different sources for information and knowledge
- d.6- Work in a team and leading teams
- d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Pathology of genital system (Lec. 2h./week, Pract 2h./week)	<u>Course description</u> Introduction Response of avian tissues to injuries.	3	12	6	6
	Intersexuality Free martinism	2	8	4	4
	Pathology of ovary	2	8	4	4
	Pathology of ovary	1	4	2	2
	Pathology of fallopian tube	1	4	2	2
	Pathology of uterus	3	12	6	6
	Pathology of cervix , vagina and vulva	2	8	4	4
	Diseases causing abortion -Bacterial diseases	3	12	6	6



Course specification of postgraduate

	Diseases causing abortion -Viral diseases -Parasitic and mycotic diseases	3	12	6	6
	Mastitis	4	16	8	8
	Pathology of testes and scrotum	2	8	4	4
	Pathology of spermatic cord and epididymis Pathology of vas deferens , prostate and vesicular glands Pathology of penis and prepuce	2	8	4	4
	Application of routine pathology on genital abnormalities	3	12	6	6
	Application of advanced ipathological techniques	3	12	6	6
	Students activities - Collect pathology, specimens. - Writing assays. Pathology rounds	2	8	4	4
	Total	36	252	108	144

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods
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Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	d1-d7
Practical Exam	-----	b1- b13	c1- c10	d1-d7
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month(s)
Written exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

Textbook of General Pathology----- (Staff members of the dep.)
 Practical of General Pathology----- (Staff members of the dep.)
 Textbook of Systemic Pathology ----- (Staff members of the dep.)
 Practical of Systemic Pathology----- (Staff members of the dep.)
 Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

- Kenneth McEntee (1990) Reproductive Pathology of Domestic Mammals.
 - Claus D. Buergelt (1997) Color Atlas of Reproductive Pathology of Domestic Animals.
 Publisher: Mosby; 1st edition

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
 - Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases)
 - Jennings, A.R. (Animal Pathology)
 - Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology)
 Saunders, Philadelphia
 - Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

- **Pathologia Veterinaria**
- **American Journal of Pathology**
- **Journal of Pathology and Bacteriology**
- **Archive of Pathology**
- **Veterinary Record**
- **Journal of Comparative Pathology**
- **Canadian Journal of comparative Medicine**
- **American Journal of veterinary research**
- **Research on veterinary Science**

Websites:

WWW.Science direct

WWW. Pubmed.com

[WWW.Scholar](#) google.com

[WWW.welly](#) interscience

Course Coordinator

Dr. Nesreen Safwat

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Faculty of Veterinary Medicine,
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Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department, Faculty
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Beni Suef University
Faculty of Veterinary Medicine

Course specification

	Topic	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	<u>Course description</u> Introduction	1 st W - 3 rd W	1-14	1-13	-----	1-7
2	Intersexuality Free martinism	3 rd W - 5 th W	1-14	1-13	1-10	1-7
3	Pathology of ovary	6 th W	1-14	1-13	1-10	1-7
4	Pathology of ovary	7 th W	1-14	1-13	1-10	1-7
5	Pathology of fallopian tube	8 th W - 10 th W	1-14	1-13	1-10	1-7
6	Pathology of uterus	11 th W- 12 th W	1-14	1-13	1-10	1-7
7	Pathology of cervix , vagina and vulva	13 th W	1-14	1-13	1-10	1-7
8	Diseases causing abortion	14 th W- 16 th W	1-14	1-13	1-10	1-7
9	Mastitis	17 th W-21 th W	1-14	1-13	1-10	1-7
10	Pathology of testes and scrotum	22 th W- 25 th W	1-14	1-13	1-10	1-7
11	Pathology of spermatic cord and epididymis Pathology of vas deferens , prostate and vesicular glands Pathology of penis and prepuce	26 th W- 27 th W	1-14	1-13	1-10	1-7
12	application of molecular pathology on genital abnormalities	28 th W-31 th W	1-14	1-13	1-10	1-7



Beni Suef University
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Course specification

13	application of immunohistochemistry to detect steroid receptors	32th W- 35th W	1-14	1-13	1-10	1-7
14	Students activities	36th W	1-14	1-13	1-10	1-7



University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Departments: Pathology

Course specification

A- Administrative Information:

Course Code:	
Course title :	General Pathology.
Program title:	Master Program scientific
Degree:	Master
Contact hours/ week	2 hours per week (1hr theoretical and 1hr practical).
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in Pathology, the postgraduate student will be able to recognize the fundamentals of general Pathology.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

- a1 – Describe the theories and the basics of modern knowledge in the field of general pathology .
- a2 – Enumerate the fundamentals and methodologies and ethics of scientific research and the various tools
- a3- Recall Knowledge about the molecular and cellular response of the living body when exposed to toxic agent
- a4. Outline the relationship between causes and tissue/organ changes.
- a5- Define the macroscopic and microscopic alterations.
- a.6. Describe the macroscopic & microscopic tissue changes.
- a7- Recognize Knowledge about typing and classification of different tissue/organ changes.
- a.8- Illustrate the pathogenesis of pathological agents..
- a9 – Identify The legal and ethical principles for professional practice in the area of general pathology
- a10- Elicit he principles and basics of quality in professional practice in the area of general pathology.
- a11- Set about the effects on the environment of professional practice and methods of development.



a12- Conclude the specialist subjects, including a command of literature in the field of general pathology.

a13- Describe the importance of information technology in scientific research.

b-Intellectual skills:

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

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

b1 - Analyze of information in the field of general pathology

b2 - Analyze problem-solving based on the available data

b3 - Identify research studies adding to the knowledge

b4 –Explain the formulation of scientific papers.

b5 – Differentiate the risk assessment in professional practice and planning for the development of performance in the area of general pathology

b6 - Predict career decisions in the contexts of different professional

b7- Analyze the Innovation / Creativity

b8 – Identify the dialogue and discussion based on evidence.

b9- Differentiate between tissue/organ appearance in health and diseased birds.

b10. Differentiate between the different pathological alterations

b11. Score the macroscopic and microscopic pathological lesions

b12. Identify the correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.

b13. Estimate the pathological alterations with injurious agents

c-Professional and practical skills

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

c1. Select the necessary techniques for sample reception & processing according to the nature of specimen received.

c2. Examine and identify the macroscopic criteria of the pathological alterations.

c3. Examine and identify the microscopic criteria of the pathological alterations using modern techniques.

c4. Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques

c5. Write a report commenting on a pathological specimens

c6. Detect the proficiency basic professional skills and modern techniques in the area of general pathology

c.7. Write and evaluate the professional reports

c.8. Interpret the development of existing methods and tools in the area of general pathology

c9. Dissect the use of technological means to serve the professional practice

c10. Use the planning for the development of professional practice and development



d-General and transferable skills

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

- d1 –Appreciate the effective communication in its different forms
- d2 - Use of information technology to serve the development of professional practice
- d3- Maintain the teaching others and evaluate their performance
- d4- Recognize the self-assessment and continuous learning
- d5- Apply different sources for information and knowledge
- d6- 1be responsible in a team and leading teams
- d7- Prepare scientific meetings and the ability to manage time

3-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
(Lec. 2h./week, Pract 2h./week)	<u>Course description</u> Disturbances of cell protein metabolism: -Cloudy swelling, -hydropic degeneration, -mucous deg -Fibrinoiddeg, - hyalinosi -gout	4	16	8	8
	Disturbances of cell lipids and carbohydrates - Fatty change - adiposity - Glycogen infiltration	4	16	8	8
	Disturbances of pigments and minerals -Bile pigments - Hemosidrin, - Lipofusin, - Hematin, Pyrphorin, - Pathological calcification - Necrosis,apoptosis and gangrene.	4	16	8	8
	- Disturbances of circulation	4	16	8	8
	Inflammation	4	16	8	8
	Disturbances in cell growth - Hyperplasia, - hypoplasia, - atrophy, - hypertrophy - Tumors: causes, nomenclature.	4	16	8	8



	Classification, types				
	- differentiation between pathological lesions using of special stains	4	16	8	8
	- application of immunohistochemistry for confirmation	4	16	8	8
	Students activities - Collect pathology, specimens. - Writing assays. - Pathology rounds.	4	16	8	8
	Total	36	174	72	72

4-Teaching and learning methods

- Lectures: developed relies on student participation and discussion with the aid of multimedia
- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.
- Self-learning activities:
 - * Samples collections and research from the internet and library
 - * panel discussions(Histopathology and Gross pathology rounds).

***E-Learning(using and activation of electronic course of pathology – [http://:cms.nelc.edu.eg](http://cms.nelc.edu.eg))5-Student assessment**

5.1. Assessments methods:

exam	KU	IS	PPS	GT
TheoreticalExams	a1-a14	b1-b13		
Practicalexams	a1-a14	b1-b13	c1-c10	
Oral examination	a1-a14	b1-b13	c1-c10	d1-d7
Studentactivities	a1-a14	b1-b13	c1-c10	d1-d7

5.2. Assessment schedules/semester:

exam	week
TheoreticalExams	fifty-three to fifty-five week
Practicalexams	fifty-three week
Oral examination	fifty-three to fifty-five week
Studentactivities	thirteen week & twenty-six week

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Final exams	50%



Total	100%
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6- List of references

6.1. Notes and books:

Textbook of General Pathology----- (Staff members of the dep.)
 Practical of General Pathology----- (Staff members of the dep.)
 Textbook of Systemic Pathology ----- (Staff members of the dep.)
 Practical of Systemic Pathology----- (Staff members of the dep.)
 Textbook of Pathology of Specific Diseases.--- (Staff members of the dep.)

6.2. Recommended textbooks:

Jubb,K.V., P.C.Kennedy and N.Palmer (1993) Pathology of Domestic Animal, 6th ed. San Diego, New York
 Jones, T.C., Hunt, R.D. and King, N.W (2008)
 Gallin, J. and Synder , R (1999), Inflammation 3rd. ed. Lippincott Williams, Wilkins. Philadelphia
 - by Norman F. Cheville "Introduction to Veterinary Pathology" 1999
 - Ramz-I S. and Kumar, V. and Collin, T. (1999) Pathological Basis of Disease , 6th ed .
 - Guido Majno (2004) Cells, Tissues, and Disease: Principles of General Pathology (Majno, Cells, Tissues, and Disease)
 - Thomson, R.G. (2000) General Veterinary Pathology) Saunders, Philadelphia

Websites and Journals

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

<http://cms.nelc.edu.eg>
www.asvp.asn.au.com
www.genengnews.com
www.altcancer.com

Course Coordinator

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Head of the department

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Professor and Head of Pathology department,
 Faculty of Veterinary Medicine,
 Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of laboratory animals 2 hours/week (Lec. 1hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of laboratory animals	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of laboratory animals	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of laboratory animals	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of laboratory animals	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of laboratory animals	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of laboratory animals	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of laboratory animals	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of laboratory animals	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of laboratory animals	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of laboratory animals	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of laboratory animals	25, 26	1,2	12	6,7,8	



University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Departments: Pathology

Course specification

A- Administrative Information:

Course Code:	
Course title :	Pathology of Tumors
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	2 hours per week (1hr theoretical and 1hr practical).
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in Pathology, the postgraduate student will be able to recognize the fundamentals of pathology of tumors.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

- a1 - Theories and the basics of modern knowledge in the field of oncopathology
- a2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a3- Recall Knowledge about the molecular and cellular response of the living body when exposed to toxic agent
- a4- Outline the relationship between causes and tissue/organ changes.
- a5- Describe the macroscopic & microscopic tissue changes.
- a6-Record the macroscopic and microscopic alterations.
- a7- Recognize Knowledge about typing and classification of different tissue/organ changes.
- a8- Illustrate the pathogenesis of pathological agents..
- a9– Identify The legal and ethical principles for professional practice in the area of oncopathology
- a10 - The principles and basics of quality in professional practice in the area of oncopathology
- a11- Knowledge about the effects on the environment of professional practice and methods of development.
- a12- Define the specialist subjects, including a command of literature in the field of oncopathology.
- a13- Discuss the importance of information technology in scientific research.
- a14- Describe the molecular basis (molecular pathology) of common types of neoplasms.



Intellectual skills:

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

- b1 - Analysis and evaluation of information in the field of oncopathology
- b2 - Specialized problem-solving based on the available data
- b3 - Conducting research studies adding to the knowledge
- b4 - The formulation of scientific papers.
- b5 - Risk assessment in professional practice and planning for the development of performance in the area of oncopathology
- b6 - Making career decisions in the contexts of different professional
- b7- Innovation /Creativity
- b8-The dialogue and discussion based on evidence.
- b9- Discriminate between tissue/organ appearance in health and diseased birds.
- b10. Differentiate between the different pathological alterations
- b11. Score the macroscopic and microscopic pathological lesions
- b12. Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b13. Integrate the pathological alterations with injurious agents

c-Professional and practical skills

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

- c1. Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c2. Examine and identify the macroscopic criteria of the pathological alterations.
- c3. Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c4. Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c5. Write a report commenting on a pathological specimens
- c6 -Proficiency basic professional skills and modern techniques in the area of oncopathology
- c.7-Writing and evaluation of professional reports
- c.8- Evaluation and development of existing methods and tools in the area of oncopathology
- c9- The use of technological means to serve the professional practice
- c10- Planning for the development of professional practice and development

d-General and transferable skills

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

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

- d1 - Effective communication in its different forms
- d2 - Use of information technology to serve the development of professional practice
- d3- Teaching others and evaluate their performance
- d4- Self-assessment and continuous learning
- d5- The use of different sources for information and knowledge
- d6- Work in a team and leading teams
- d7- Management of scientific meetings and the ability to manage time

3-Topics and contents



Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
(Lec. 1h./week, Pract1h./week)	<u>Course description</u> - Introduction -Sampling and preservation - Cell and tissue reaction to injury. -Circulatory response in relation to inflammatory reaction - Malformations	4	12	4	8
	Disturbances of cell growth: - Aplasia,Hypoplasia,hyperplasia,atrophy	2	6	2	4
	- Disturbances of cell growth : Hypertrophy,metaplasia,neoplasia	2	6	2	4
	<u>Neoplasia</u> Initiation and DNA aberration or mutation (genetic)- Mechanism of chemical carcinogenesis- Mechanism of radiation carcinogenesis Mechanism of viral carcinogenesis	2	6	2	4
	Promotion (pregenetic)hormones, mitogens, growth factors, dietic factors, chronic inflammation. Progression genetic and pregenetic) leading to progressed anaplasia	6	20	6	12
	General features of tumourogenesis and molecular bases of metastasis and local spread.- Loss of contact inhibition. Defect in gap function.- Defect in cadherin adhesion molecules.Tumour suppressor genes.- Tumour Immunology- Nomenclature of tumors	3	9	3	6
	The epithelial tumors-	3	9	3	6
	The non-epithelial tumors	3	9	3	6
	Diagnostic aspect of tumors and tumor markers.	5	15	5	10
	-Immunohistochemistry using tissue microarray -Molecular pathological examination using tissue microarray	3	9	3	6
	Students activities - Collect pathology, specimens. - Writing assays.	3	9	3	6



	- Pathology rounds.				
	Total	36	108	36	72

4-Teaching and learning methods

4.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

- Lectures: developed relies on student participation and discussion with the aid of multimedia
- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.
- Self-learning activities:
 - * Samples collections and research from the internet and library
 - * panel discussions(Histopathology and Gross pathology rounds).
- *E-Learning(using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

- 5.2.1. Tutor presentation followed by students' small group sessions.
- 5.2.2. Freshly died cadavers of laboratory animals.
- 5.2.3. Educational models.
- 5.2.4. Prepared bones from euthanatized animals.
- 5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

- 5.3.1. Writing reports and assignments (computer researches and faculty library attendance).
- 5.3.2. Preparation of colored posters and slide presentation.
- 5.3.3. Preparation of bones and preserving specimens.
- 5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

exam	KU	IS	PPS	GT
TheoreticalExams	a1-a14	b1-b13		
Practicalexams	a1-a14	b1-b13	c1-c10	
Oral examination	a1-a14	b1-b13	c1-c10	d1-d7
Studentactivities	a1-a14	b1-b13	c1-c10	d1-d7

5.2. Assessment schedules/semester:

exam	week
TheoreticalExams	fifty-three to fifty-five week
Practicalexams	fifty-three week
Oral examination	fifty-three to fifty-five week
Studentactivities	thirteen week & twenty-six week

5.3. Weight of assessments:



Assessment	Weight of assessment
Practical and oral exams	50%
Final exams	50%
Total	100%

6- List of references

8.1. Notes and books:

Textbook of General Pathology----- (Staff members of the dep.)
 Practical of General Pathology----- (Staff members of the dep.)
 Textbook of Systemic Pathology ----- (Staff members of the dep.)
 Practical of Systemic Pathology----- (Staff members of the dep.)
 Textbook of Pathology of Specific Diseases.--- (Staff members of the dep.)

8.2. Essential books:

-Fisher, C. (2010) Diagnostic Pathology: Soft Tissue Tumors: Published by Amirsys
 - Miettinen, M (2010) Modern Soft Tissue Pathology: Tumors and Non-Neoplastic Conditions. academic press, London
 -Soslow, R and Tornos, C (2011)Diagnostic Pathology of Ovarian Tumors.academic press, London
 8.3. Recommended textbooks:

- Olsen, Richard G. (Comparative Pathobiology and Viral Diseases)
 - Boca Raton, Fla and Cheville, Norman F. , (Cytopathology in Viral Diseases (Karger, Basel))
 - Herenda, Drago C. , (Food Animal Pathology and Meat Hygiene)
 - Jennings, A.R. (Animal Pathology)
 - Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
 - Thomson, R.G. (General Veterinary Pathology) Saunders, Philadelphia

8.4. Journals, Websitesetc

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
 - PathologiaVeterinaria
 - American Journal of Pathology
 - Journal of Pathology and Bacteriology
 - Archive of Pathology
 - Veterinary Record
 - Journal of Comparative Pathology
 - Canadian Journal of comparative Medicine
 - American Journal of veterinary research
 - Research on veterinary Science

Websites:

<http://cms.nelc.edu.eg>
www.asvp.asn.au.com
www.genengnews.com
www.altcancer.com



University
Faculty of Veterinary Medicine

Course Coordinator

Dr. Nesreen Safwat

Lecturer of Pathology Department
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department,
Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of laboratory animals 2 hours/week (Lec. 1hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of laboratory animals	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of laboratory animals	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of laboratory animals	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of laboratory animals	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of laboratory animals	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of laboratory animals	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of laboratory animals	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of laboratory animals	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of laboratory animals	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of laboratory animals	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of laboratory animals	25, 26	1,2	12	6,7,8	



University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Departments: Pathology

Course specification

A- Administrative Information:

Course Code:	
Course title :	Pathology of Microbial disease
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	2hours per week (1hr theoretical and 1hr practical).
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in Pathology, the postgraduate student will be able to recognize the fundamentals of pathology of microbial diseases.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

- a1 - Theories and the basics of modern knowledge in the pathology of microbial diseases
- a2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a3. Recall Knowledge about the molecular and cellular response of the living body when exposed to toxic agent
- a4. Outline the relationship between causes and tissue/organ changes.
- a5. Describe the macroscopic & microscopic tissue changes.
- a6-Record the macroscopic and microscopic alterations.
- a7- Recognize Knowledge about typing and classification of different tissue/organ changes.
- a8- Illustrate the pathogenesis of pathological agents..
- a9 – Identify The legal and ethical principles for professional practice in the pathology of microbial diseases
- a10 - The principles and basics of quality in professional practice in pathology of microbial diseases
- a11 - Knowledge about the effects on the environment of professional practice and methods of development.
- a12- Define the specialist subjects, including a command of literature in the pathology of microbial diseases.
- a13- Discuss the importance of information technology in scientific research.
- a14- Describe the molecular basis (molecular pathology) of common microbial diseases

b-Intellectual skills:



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

- b1 - Analysis and evaluation of pathological information of microbial diseases
- b2 - Specialized problem-solving based on the available data
- b3 - Conducting research studies adding to the knowledge
- b4 - The formulation of scientific papers.
- b5 - Risk assessment in professional practice and planning for the development of performance in the pathology of microbial diseases
- b6 - Making career decisions in the contexts of different professional
- b7- Innovation / Creativity
- b8 - The dialogue and discussion based on evidence.
- b9- Discriminate between tissue/organ appearance in health and diseased birds.
- b10. Differentiate between the different pathological alterations
- b11. Score the macroscopic and microscopic pathological lesions
- b12. Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b13. Integrate the pathological alterations with injurious agents

c-Professional and practical skills

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

- c1. Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c2. Examine and identify the macroscopic criteria of the pathological alterations.
- c3. Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c4. Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c5. Write a report commenting on a pathological specimens
- c6 - Proficiency basic professional skills and modern techniques in the pathology of microbial diseases
- c.7 - Writing and evaluation of professional reports
- c.8 - Evaluation and development of existing pathological methods and tools for diagnoses of microbial diseases
- c9 - The use of technological means to serve the professional practice
- c10 - Planning for the development of professional practice and development

d-General and transferable skills

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

- d1 - Effective communication in its different forms
- d2 - Use of information technology to serve the development of professional practice
- d3- Teaching others and evaluate their performance
- d4- Self-assessment and continuous learning
- d5- The use of different sources for information and knowledge
- d6- Work in a team and leading teams
- d7- Management of scientific meetings and the ability to manage time



3-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
(Lec. 1h./week, Pract 1h./week)	<u>Course description</u> - Introduction -Sampling and preservation - Cell and tissue reaction to injury. -Circulatory response in relation to inflammatory reaction	4	16	8	8
	The cytopathic effect of the virus Viral tropism- Foot and mouth disease- Vesicular stomatitis Papularsomatitidis- Mucosal disease	2	8	4	4
	Cattle Plague- Malignant catarrhal fever-				
	Infectious bovine rhinotracheitis- Parainfluenza-3-. Rift valley fever- Bovine ephemeral fever Cattle pox - Sheep Pox- Lumpy skin disease- Papillomatosis -.	3	12	6	6
	-Leucosis-Contagious ovine ecthema- Bluetongue- ScrapieBovinespongiformencephalopa	2	8	4	4
	- Viral diseases of equines	3	12	6	6
	Tuberculosis_ Paratuberculosis- Pseudotuberculosis, ActinomyosisActinobacillosis	3	12	6	6
	- Colibacillosis-Paratyphoid-Navel ill_- Calf-Diphtheria-Black leg	3	12	6	6
	- Malignant edema-Enterotoxemia - Black disease - Pulpy kidney-Bacillary hemoglobinuria	3	12	6	6
	Anthrax-Hemorrhagic septicemia Hemorrhagic septicemia in sheep Contagious Bovine Pleuropneumonia	3	12	6	6
	Vibrosis Brucellosis - Leptospirosis Listeriosis- Oedematous skin diseases	3	12	6	6
	Glanders- Ulcerative lymphangitis- Epizootic lymphangitis - Strangles Aspergillosis	2	8	4	4
	- Postmortem examination - Immunohistochemical application - Molecular detection of pathogens	2	8	4	4



	Students activities - Collect pathology, specimens. - Writing essays. - Pathology rounds.	3	12	6	6
	Total	36	144	72	72

4-Teaching and learning methods

- Lectures: developed relies on student participation and discussion with the aid of multimedia
- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

- Self-learning activities:
* Samples collections and research from the internet and library
* panel discussions(Histopathology and Gross pathology rounds).
*E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

5.2. Laboratory sessions in which one or more of the following facilities are used:

5-Student assessment

5.1. Assessments methods:

exam	KU	IS	PPS	GT
TheoreticalExams	a1-a14	b1-b13		
Practical exams	a1-a14	b1-b13	c1-c10	
Oral examination	a1-a14	b1-b13	c1-c10	d1-d7
Student activities	a1-a14	b1-b13	c1-c10	d1-d7

5.2. Assessment schedules/semester:

exam	week
TheoreticalExams	fifty-three to fifty-five week
Practicalexams	fifty-three week
Oral examination	fifty-three to fifty-five week
Studentactivities	thirteen week & twenty-six week

5.3. Weight of assessments:

exam	weighing
TheoreticalExams	50%
Practicalexams	25%
Oral examination	25%
Studentactivities	-

6- List of references

8.1. Notes and books:

- Textbook of General Pathology----- (Staff members of the dep.)
Practical of General Pathology----- (Staff members of the dep.)
Textbook of Systemic Pathology ----- (Staff members of the dep.)



Practical of Systemic Pathology----- (Staff members of the dep.)

Textbook of Pathology of Specific Diseases.--- (Staff members of the dep.)

8.2. Essential books:

Jubb,K.V., P.C.Kennedy and N.Palmer (1993) Pathology of Domestic Animal, 6th ed. San Diego, New York Jones, T.C.,

Hunt, R.D. and King, N.W (2008) Veterinary pathology , 8th ed. Williams and Wilkins, Waverly company (2008)

- Naysk, NC; Roy, S. and P.chopra (2000) Pathology of Diseases, 1st ed . Jaypee Brothers medical publishers (p) Ltd- Ramz-I S. and Kumar, V. and Collin, T. (1999) -- Pathological Basis of Disease , 6th ed .

8.3. Recommended textbooks:

- Olsen, Richard G. (Comparative Pathobiology and Viral Diseases)

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Herenda, Drago C. , (Food Animal Pathology and Meat Hygiene)

Jennings, A.R. (Animal Pathology)

Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia

Thomson, R.G. (General Veterinary Pathology) Saunders, Philadelphia

8.4. Journals, Websitesetc

journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.

- Pathologia Veterinaria

- American Journal of Pathology

- Journal of Pathology and Bacteriology

- Archive of Pathology

- Veterinary Record

- Journal of Comparative Pathology

- Canadian Journal of comparative Medicine

- American Journal of veterinary research

- Research on veterinary Science

Websites:

<http://cms.nelc.edu.eg>

www.asvp.asn.au.com

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Course Coordinator

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Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department,
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Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of laboratory animals 2 hours/week (Lec. 1hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of laboratory animals	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of laboratory animals	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of laboratory animals	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of laboratory animals	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of laboratory animals	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of laboratory animals	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of laboratory animals	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of laboratory animals	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of laboratory animals	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of laboratory animals	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of laboratory animals	25, 26	1,2	12	6,7,8	



University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Departments: Pathology

Course specification

A- Administrative Information:

Course Code:	
Course title :	Pathology of parasitic diseases.
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	2 hours per week (1hr theoretical and 1hr practical).
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in Pathology, the postgraduate student will be able to recognize the fundamentals of Pathology of parasitic diseases.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

- a1 -Theoriesandthe basicsofmodernknowledge in the pathology of parasitic diseases
- a2- Fundamentalsandmethodologiesandethics ofscientific researchandthe varioustools
- a3-Recall Knowledge about the molecular and cellular response of the living body when exposed to injurious agent
- a4- Outline the relationship between causes and tissue/organ changes.
- a5- Record the macroscopic and microscopic alterations.
- a6-. Describe the macroscopic & microscopic tissue changes nematode, cestoda, trematoda, protozoa, and insect infection.
- a7- Recognize Knowledge about typing and classification of different Helminth affections.
- a8. Illustrate the pathogenesis of parasitic diseases.
- a9-Identify The legalandethical principlesfor professional practiceinthe pathology of parasitic diseases
- a10 -The principlesandbasics ofquality inprofessional practiceinthe pathology of parasitic diseases
- a11-Knowledge aboutthe effectson the environmentof professionalpracticeand methods ofdevelopment.
- a12- Define the specialist subjects, including a command of literature inthe pathology of



parasitic diseases

a13- Discuss the importance of information technology in scientific research.

a14- Describe the molecular basis (molecular pathology) of common parasitic lesions.

b-Intellectual skills:

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

b1 - Analysis and evaluation of information in the pathology of parasitic diseases

b2 - Specialized problem-solving based on the available data

b3 - Conducting research studies adding to the knowledge

b4 - The formulation of scientific papers.

b5 - Risk assessment in professional practice and planning for the development of performance in the pathology of parasitic diseases

b6 - Making career decisions in the contexts of different professional

b7- Innovation /Creativity

b8- The dialogue and discussion based on evidence.

b9- Discriminate between tissue/organ appearance in health and diseased birds.

b10. Differentiate between the different pathological alterations

b11. Score the macroscopic and microscopic pathological lesions

b12. Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.

b13. Integrate the pathological alterations with injurious agents

c-Professional and practical skills

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

c1. Select the necessary techniques for sample reception & processing according to the nature of specimen received.

c2. Examine and identify the macroscopic criteria of the pathological alterations.

c3. Examine and identify the microscopic criteria of the pathological alterations using modern techniques.

c4. Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques

c5. Write a report commenting on a pathological specimens

c6 -Proficiency basic professional skills and modern techniques in the pathology of parasitic diseases

c.7 -Writing and evaluation of professional reports

c.8- Evaluation and development of existing methods and tools used in studying of the pathology of parasitic diseases

c9- The use of technological means to serve the professional practice

c10- Planning for the development of professional practice and development

d-General and transferable skills

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

d1 -Effective communication in its different forms

d2 -Use of information technology to serve the development of professional practice

d3-Teaching others and evaluate their performance



- d4-Self-assessment and continuous learning
d5- The use of different sources for information and knowledge
d6- Work in a team and leading teams
d7- Management of scientific meetings and the ability to manage time

3-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
(Lec. 1h./week, Pract 1h./week)	<u>Course description</u> - Introduction - Sampling and preservation - Cell and tissue reaction to injury. - Circulatory response in relation to inflammatory reaction - Malformations	6	18	6	12
	- Host response to parasites- Classification of helminthes- Parasitic infestation of the skin (mites, ticks, fleas and lice myiasis and filariasis (leishmaniasis,))	2	6	2	4
	- Parasitic infestation of the respiratory system: nasal cavity- trachea- lung and pleura	2	6	2	4
	Parasitic infestation of the gastrointestinal tract. (ascariasis, strongyloids and trichostrongyloids, hookworms, coccidiosis cryptosporidiosis))	5	15	5	10
	Parasitic infestation of the liver (trematodes, coccidiosis)	4	12	4	8
	Parasitic infestation of the muscles (toxoplasmosis, sarcocystosis trypanosomiasis, trichiniasis, (cysticercosis)	3	9	3	6
	Visceral larval migrans	3	9	3	6
	Theileriasis-. babesiasis thelaziasis	5	15	5	10
	- application of immunohistochemistry and molecular detections of parasites in tissues	3	9	3	6



	Students activities - Collect pathology, specimens. - Writing essays. - Pathology rounds.	3	9	3	6
	total	36	108	36	72

4-Teaching and learning methods

- Lectures: developed relies on student participation and discussion with the aid of multimedia
- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.
- Self-learning activities:
 - * Samples collections and research from the internet and library
 - * panel discussions (Histopathology and Gross pathology rounds).
 - * E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

5-Student assessment

5.1. Assessments methods:

exam	KU	IS	PPS	GT
Theoretical Exams	a1-a14	b1-b13		
Practical exams	a1-a14	b1-b13	c1-c10	
Oral examination	a1-a14	b1-b13	c1-c10	d1-d7
Student activities	a1-a14	b1-b13	c1-c10	d1-d7

5.2. Assessment schedules/semester:

exam	week
Theoretical Exams	fifty-three to fifty-five week
Practical exams	fifty-three week
Oral examination	fifty-three to fifty-five week
Student activities	thirteen week & twenty-six week

5.3. Weight of assessments:

exam	weighing
Theoretical Exams	50%
Practical exams	25%
Oral examination	25%
Student activities	-

6- List of references

6.1. Notes and books:



Textbook of General Pathology----- (Staff members of the dep.)
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Textbook of Pathology of Specific Diseases.--- (Staff members of the dep.)

8.2. Essential books:

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- Jone J and Hunts J (2008) "**Veterinary pathology**" , 8th ed. Williams and wilkins, Waverly company
- Naysk, NC; Roy, S. and P.chopra (2000) **Pathology of Diseases**, 1sted . JaypeeBrathers medical publishers (p) Ltd
- Yezid Gutierrez(2000) "Diagnostic Pathology of Parasitic Infections with Clinical Correlations"
- KarlhannsSalfelder(1992) "Atlas of Parasitic Pathology (Current Histopathology)

8.3. Recommended textbooks:

- Olsen, Richard G. (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. , (Cytopathology in Viral Diseases (Karger, Basel))
- Herenda, Drago C. , (Food Animal Pathology and Meat Hygiene)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (General Veterinary Pathology) Saunders, Philadelphia

8.4. Journals, Websitesetc

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- American Journal of Pathology
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- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

<http://cms.nelc.edu.eg>
www.asvp.asn.au.com

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Course Coordinator

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Head of the department

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Professor and Head of Pathology department,
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Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of laboratory animals 2 hours/week (Lec. 1hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of laboratory animals	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of laboratory animals	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of laboratory animals	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of laboratory animals	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of laboratory animals	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of laboratory animals	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of laboratory animals	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of laboratory animals	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of laboratory animals	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of laboratory animals	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of laboratory animals	25, 26	1,2	12	6,7,8	



University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Departments: Pathology

Course specification

A- Administrative Information:

Course Code:	
Course title :	Pathology of deficiency diseases.
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	2 hours per week (1hr theoretical and 1hr practical).
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in Pathology, the postgraduate student will be able to recognize the fundamentals of Pathology of deficiency diseases.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

- a1 -Theoriesandthe basicsofmodernknowledgein the field of avian pathology .
- a2- Fundamentalsandmethodologiesandethics ofscientific researchandthe varioustools
- a3. Recall Knowledge about the molecular and cellular response of the living body when exposed to toxic agent
- a4. Outline the relationship between causes and tissue/organ changes.
- a5- Record the macroscopic and microscopic alterations.
- a.6. Describe the macroscopic & microscopic tissue changes.
- a7. Recognize Knowledge about typing and classification of different tissue/organ changes.
- a.8. Illustrate the pathogenesis of pathological agents..
- a9 –Identify The legalandethical principlesfor professional practiceinthe area of avian pathology
- a10 -The principlesandbasics ofquality inprofessional practiceinthe area of pathology of deficiency diseases.
- a11-Knowledge aboutthe effectson the environmentof professionalpracticeand methods ofdevelopment.
- a12- Define the specialist subjects, including a command of literature in the field of pathology of deficiency diseases.
- a13- Discuss the importance of information technology in scientific research.



a14- Describe the molecular basis (molecular pathology) of common pathology of deficiency diseases.

b-Intellectual skills:

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

- b1 - Analysis and evaluation of information in the field of pathology of deficiency diseases.
- b2 - Specialized problem-solving based on the available data
- b3 - Conducting research studies adding to the knowledge
- b4 -The formulation of scientific papers.
- b5 - Risk assessment in professional practice and planning for the development of performance in the area of pathology of deficiency diseases.
- b6 - Making career decisions in the contexts of different professional
- b7-Innovation /Creativity
- b8-The dialogue and discussion based on evidence.
- b9-Discriminate between tissue/organ appearance in health and diseased birds.
- b10. Differentiate between the different pathological alterations
- b11. Score the macroscopic and microscopic pathological lesions
- b12. Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b13. Integrate the pathological alterations with injurious agents

c-Professional and practical skills

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

- c1. Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c2. Examine and identify the macroscopic criteria of the pathological alterations.
- c3. Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c4. Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c5. Write a report commenting on a pathological specimens
- c6 -Proficiency basic professional skills and modern techniques in the area of pathology of deficiency diseases.
- c.7 -Writing and evaluation of professional reports
- c.8- Evaluation and development of existing methods and tools in the area of pathology of deficiency diseases.
- c9- The use of technological means to serve the professional practice
- c10- Planning for the development of professional practice and development

d-General and transferable skills

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

- d1 -Effective communication in its different forms
- d2 -Use of information technology to serve the development of professional practice
- d3-Teaching others and evaluate their performance
- d4-Self-assessment and continuous learning



- d5- The use of different sources for information and knowledge
d6- Work in a team and leading teams
d7- Management of scientific meetings and the ability to manage time

3-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
(Lec. 1h./week, Pract 2h./week)	<u>Course description</u> Introduction - Sampling and preservation - Cell and tissue reaction to injury. - interrelationship of vascular response and reaction	6	18	6	12
	Fat soluble vitamins - Avitaminosis A- Hypervitaminosis A- Avitaminosis D- Hypervitaminosis D-	4	12	4	8
	Fat soluble vitamins Avitaminosis K- Hypervitaminosis K Avitaminosis E- Hypervitaminosis E	4	12	4	8
	water soluble vitamins Deficiency of vitamin C- Deficiency and toxicity of riboflavin	3	9	3	6
	Deficiency and toxicity of vitamin B12- Deficiency of folic acid- Deficiency of Biotin	3	9	3	6
	- Deficiency of minerals and electrolytes: - Phosphorus-calcium-magnesium-manganese	4	12	4	8
	Deficiency of minerals and electrolytes: -Zinc-sodium and chloride-copper-Iron-potassium-Molybdenum-iodine-fluorine	4	12	4	8
	Application of immunohistochemical techniques in on nutritional deficiency	3	9	3	6
	Molecular pathology applications on nutritional deficiency	3	9	3	6
	Students activities	2	6	2	4



	<ul style="list-style-type: none"> - Collect pathology, specimens. - Writing assays. - Pathology rounds. 				
		36	108	36	72

4-Teaching and learning methods

- Lectures: developed relies on student participation and discussion with the aid of multimedia
- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.
- Self-learning activities:
 - * Samples collections and research from the internet and library
 - * panel discussions (Histopathology and Gross pathology rounds).
 - * E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

5-Student assessment

5.1. Assessments methods:

exam	KU	IS	PPS	GT
Theoretical Exams	a1-a14	b1-b13		
Practical exams	a1-a14	b1-b13	c1-c10	
Oral examination	a1-a14	b1-b13	c1-c10	d1-d7
Student activities	a1-a14	b1-b13	c1-c10	d1-d7

5.2. Assessment schedules/semester:

5.3. Weight of assessments:

exam	week
Theoretical Exams	fifty-three to fifty-five week
Practical exams	fifty-three week
Oral examination	fifty-three to fifty-five week
Student activities	thirteen week & twenty-six week

exam	weighing
Theoretical Exams	50%
Practical exams	25%
Oral examination	25%
Student activities	-

6- List of references

6.1. Notes and books:



Textbook of General Pathology----- (Staff members of the dep.)
Practical of General Pathology----- (Staff members of the dep.)
Textbook of Systemic Pathology ----- (Staff members of the dep.)
Practical of Systemic Pathology----- (Staff members of the dep.)
Textbook of Pathology of Specific Diseases.--- (Staff members of the dep.)

6.2. Essential books:

Ramz-I S. and Kumar, V. and Collin, T. (1999) Pathological Basis of Disease , 6th ed .
- Bruce R. Smoller and Franco Rongioletti "Clinical and Pathological Aspects of Skin Diseases in Endocrine, Metabolic, Nutritional and Deposition Disease"(2010)
- H. Sidransky "Nutritional Pathology (Biochemistry of Disease)""1985)

6.3. Recommended textbooks:

- Olsen, Richard G. (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Flaand Cheville, Norman F. , (Cytopathology in Viral Diseases (Karger, Basel))
- Herenda, Drago C. , (Food Animal Pathology and Meat Hygiene)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (General Veterinary Pathology) Saunders, Philadelphia

6.4. Journals, Websitesetc

Journals

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- PathologiaVeterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

<http://cms.nelc.edu.eg>
www.asvp.asn.au.com
[www.geneng news.com](http://www.genengnews.com)
www.altcancer.com

Course Coordinator

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Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department,
Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of laboratory animals 2 hours/week (Lec. 1hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of laboratory animals	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of laboratory animals	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of laboratory animals	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of laboratory animals	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of laboratory animals	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of laboratory animals	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of laboratory animals	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of laboratory animals	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of laboratory animals	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of laboratory animals	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of laboratory animals	25, 26	1,2	12	6,7,8	



University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Departments: Pathology

Course specification

A- Administrative Information:

Course Code:	
Course title :	Environmental Pathology
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	2 hours per week (1hr theoretical and 1hr practical).
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in Pathology, the postgraduate student will be able to recognize the fundamentals of Enviromental Pathology.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

- a1-Theoriesandthe basicsofmodernknowledgein the field ofenvironmentalpathology .
- a2- Fundamentalsandmethodologiesandethics ofscientific researchandthe varioustools
- a3. Recall Knowledge about the molecular and cellular response of the living body when exposed to toxic agent
- a4. Outline the relationship between causes and tissue/organ changes.
- a5-Record the macroscopic and microscopic alterations.
- a6- Describe the macroscopic & microscopic tissue changes.
- a7- Recognize Knowledge about typing and classification of different tissue/organ changes.
- a8- Illustrate the pathogenesis of pathological agents..
- a9–Identify The legalandethical principlesfor professional practiceinthe area of environmentalpathology
- a10 -The principlesandbasics ofquality inprofessional practiceinthe area of environmental pathology.
- a11-Knowledge aboutthe effectson the environmentof professionalpracticeand methods ofdevelopment.
- a12- Define the specialist subjects, including a command of literature in the field of environmentalpathology.



a13- Discuss the importance of information technology in scientific research.

a14- Describe the molecular basis (molecular pathology) of common environmental pollutants.

b-Intellectual skills:

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

- b1 - Analysis and evaluation of information in the field of environmental pathology
- b2 - Specialized problem-solving based on the available data
- b3 - Conducting research studies adding to the knowledge
- b4 -The formulation of scientific papers.
- b5 - Risk assessment in professional practice and planning for the development of performance in the area of environmental pathology
- b6 - Making career decisions in the contexts of different professional
- b7- Innovation /Creativity
- b8-The dialogue and discussion based on evidence.
- b9- Discriminate between tissue/organ appearance in health and diseased birds. b10. Differentiate between the different pathological alterations
- b11. Score the macroscopic and microscopic pathological lesions
- b12. Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b13. Integrate the pathological alterations with injurious agents

c-Professional and practical skills

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

- c1. Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c2. Examine and identify the macroscopic criteria of the pathological alterations.
- c3. Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c4. Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c5. Write a report commenting on a pathological specimens
- c6 -Proficiency basic professional skills and modern techniques in the area of environmental pathology
- c.7 -Writing and evaluation of professional reports
- c.8- Evaluation and development of existing methods and tools in the area of environmental pathology
- c9- The use of technological means to serve the professional practice
- c10- Planning for the development of professional practice and development

d-General and transferable skills

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

- d1 -Effective communication in its different forms
- d2 -Use of information technology to serve the development of professional practice
- d3-Teaching others and evaluate their performance



- d4-Self-assessment and continuous learning
d5- The use of different sources for information and knowledge
d6- Work in a team and leading teams
d7- Management of scientific meetings and the ability to manage time

3-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
(Lec. 1h./week, Pract 2h./week)	<u>Course description</u> - Introduction - Sampling and preservation - Cell and tissue reaction to injury. - Circulatory response in relation to inflammatory reaction - Malformations	4	12	4	8
	Toxins, xenobiotics, and toxicity: - Classification, Absorption of toxins and their routes. Distribution, storage and storage sites. Brain and placental barrier- Biotransformation of xenobiotics, detoxification and bio-activation (phase I: cytochrome p-450 and other enzymes – (phase II: conjugation	2	6	2	4
	Factors affecting toxic effects: Genetic factors (species-- Dose and site of action- Metabolic factors (induction or depletion).-	2	6	2	4
	- Mechanism of toxic cell injury : - Elimination of oxygen radicals and oxidation stress	2	6	2	4



	Covalent binding to cell macromolecules - Peroxidation of cell membrane lipid. Protein – thiol depletion- Alteration in calcium homeostasis				
	- Enviromental pollutants (gases, chemicals(particulates and pneumoconiosis	6	20	6	12
	- Toxicologic pathology of relevant optional system (mechanism – response – lesions).	3	9	3	6
	Pathogenesis and tissue reaction to infectious pollutants - (viral,parasitic).	3	9	3	6
	Pathogenesis and tissue reaction to infectious pollutants - (bacterial,mycotic,).	5	15	5	10
	Application of immunohistochemical techniques	3	9	3	6
	Molecular pathology applications	3	12	6	6
	Students activities - Collect pathology, specimens. - Writing assays. - Pathology rounds.	3	9	3	6
	Total	36	108	36	72

4-Teaching and learning methods

- Lectures: developedrelies onstudent participationanddiscussion with the aid of multimedia
- Practical: an electronicshow with macroscopic and microscopic screening of pathological



lesions.

-Self-learning activities:

*Samplescollections andresearchfrom the internetandlibrary

*panel discussions(Histopathology and Gross pathology rounds).

*E-Learning(using and activation of electronic course of pathology –
[http://:cms.nelc.edu.eg](http://cms.nelc.edu.eg))

5-Student assessment

5.1. Assessments methods:

exam	KU	IS	PPS	GT
TheoreticalExams	a1-a14	b1-b13		
Practicalexams	a1-a14	b1-b13	c1-c10	
Oral examination	a1-a14	b1-b13	c1-c10	d1-d7
Studentactivities	a1-a14	b1-b13	c1-c10	d1-d7

5.2. Assessment schedules/semester:

exam	week
TheoreticalExams	fifty-three to fifty-five week
Practicalexams	fifty-three week
Oral examination	fifty-three to fifty-five week
Studentactivities	thirteen week & twenty-six week

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Final exams	50%
Total	100%

6- List of references

8.1. Notes and books:

Textbook of General Pathology----- (Staff members of the dep.)

Practical of General Pathology----- (Staff members of the dep.)

Textbook of Systemic Pathology ----- (Staff members of the dep.)

Practical of Systemic Pathology----- (Staff members of the dep.)

Textbook of Pathology of Specific Diseases.--- (Staff members of the dep.)

8.2. Essential books:

Rolla Bennett, ;Terzian, James A. (1980) Topics in environmental pathology ; Universities
Associated: Hill

N. Karle Mottet(2006)"Environmental Pathology" (Oxford Medicine Publications)

8.3. Recommended textbooks:



University
Faculty of Veterinary Medicine

- Olsen, Richard G. (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. , (Cytopathology in Viral Diseases (Karger, Basel))
- Herenda, Drago C. , (Food Animal Pathology and Meat Hygiene)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (General Veterinary Pathology) Saunders, Philadelphia

8.4. Journals, Websitesetc

journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- PathologiaVeterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

<http://cms.nelc.edu.eg>
www.asvp.asn.au.com
www.genengnews.com
www.altcancer.com

Course Coordinator

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Lecturer of Pathology Department
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Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department,
Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of laboratory animals 2 hours/week (Lec. 1hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of laboratory animals	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of laboratory animals	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of laboratory animals	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of laboratory animals	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of laboratory animals	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of laboratory animals	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of laboratory animals	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of laboratory animals	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of laboratory animals	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of laboratory animals	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of laboratory animals	25, 26	1,2	12	6,7,8	



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

1-Basic information

Course Code:	M-65
Course title :	Pathology of genital system
Program title:	Master programme scientific
Degree:	Master
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Date of course approval:	/9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1- Acquire knowledge on different aspects and mechanism of disease development in gonads and reproductive tract of female and male genital system.
- 2- Identify the pathological lesions and Pathogenesis and tissue reaction to infectious agents by advanced aids.
- 3- aware with tissue specimen's preparations and full description to macroscopic and microscopic pathological changes
- 4- Proficiency basics of research methodologies and scientific.
- 5- Continuing work on the addition of knowledge in the area of genital pathology.
- 6- Application of the analytical and advanced techniques in histopathology-based diagnosis.
- 7- Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
- 8- Show deep awareness of current problems and new theories in the area of genital pathology and find innovative solutions to solve them
- 9-Commitment to continuing self-development and transfer of knowledge and experience to others
- 10- Decision-making in light of available information

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a.1. acquire theories and the basics of modern knowledge in the field of genital pathology
- a.2. Recall the fundamentals and methodologies and ethics of scientific research and the various tools
- a.3. Illustrate the pathogenesis of the disease
- a.4. Recall Knowledge about the molecular and cellular response of the living body when exposed to injurious agent
- a.5. Outline the relationship between causes and tissue/organ changes.
- a.6. Record the macroscopic and microscopic alterations.
- a.7. Describe the macroscopic & microscopic tissue changes during diseases.
- a.8. Recognize knowledge about typing and classification of different



Beni-Suef University
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Department of Pathology

Course specification of postgraduate

tissue/organ changes.

- a.9. Identify The legal and ethical principles for professional practice in the area of genital pathology
- a.10. The principles and basics of quality in professional practice in the area of genital pathology.
- a.11. Knowledge about the effects on the environment of professional practice and methods of development.
- a.12. Define the specialist subjects, including a command of literature in the field of genital pathology.
- a.13. Discuss the importance of information technology in scientific research.
- a.14. Describe the molecular basis (molecular pathology) of common genital diseases.

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of genital pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 - The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of genital pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and diseased birds.
- b.10 - Differentiate between the different pathological alterations
- b.11- Score the macroscopic and microscopic pathological lesions
- b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13- Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

- c.1- Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c.2- Examine and identify the macroscopic criteria of the pathological alterations.
- c.3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c.5- Write a report commenting on a pathological specimens



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Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

- c.6- Proficiency basic professional skills and modern techniques in the area of genital pathology
- c.7- Writing and evaluation of professional reports
- c.8- Evaluation and development of existing methods and tools in the area of genital pathology
- c.9 - The use of technological means to serve the professional practice
- c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

- d.1- Effective communication in its different forms
- d.2 - Use of information technology to serve the development of professional practice
- d.3- Teaching others and evaluate their performance
- d.4- Self-assessment and continuous learning
- d.5- The use of different sources for information and knowledge
- d.6- Work in a team and leading teams
- d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Pathology of genital system (Lec. 2h./week, Pract 2h./week)	<u>Course description</u> Introduction Response of avian tissues to injuries.	3	12	6	6
	Intersexuality Free martinism	2	8	4	4
	Pathology of ovary	2	8	4	4
	Pathology of ovary	1	4	2	2
	Pathology of fallopian tube	1	4	2	2
	Pathology of uterus	3	12	6	6
	Pathology of cervix , vagina and vulva	2	8	4	4
	Diseases causing abortion -Bacterial diseases	3	12	6	6



Course specification of postgraduate

	Diseases causing abortion -Viral diseases -Parasitic and mycotic diseases	3	12	6	6
	Mastitis	4	16	8	8
	Pathology of testes and scrotum	2	8	4	4
	Pathology of spermatic cord and epididymis Pathology of vas deferens , prostate and vesicular glands Pathology of penis and prepuce	2	8	4	4
	Application of routine pathology on genital abnormalities	3	12	6	6
	Application of advanced ipathological techniques	3	12	6	6
	Students activities - Collect pathology, specimens. - Writing assays. Pathology rounds	2	8	4	4
	Total	36	144	72	72

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods
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Course specification of postgraduate

	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	d1-d7
Practical Exam	-----	b1- b13	c1- c10	d1-d7
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month(s)
Written exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

Textbook of General Pathology----- (Staff members of the dep.)
 Practical of General Pathology----- (Staff members of the dep.)
 Textbook of Systemic Pathology ----- (Staff members of the dep.)
 Practical of Systemic Pathology----- (Staff members of the dep.)
 Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

- Kenneth McEntee (1990) Reproductive Pathology of Domestic Mammals.
 - Claus D. Buergelt (1997) Color Atlas of Reproductive Pathology of Domestic Animals.
 Publisher: Mosby; 1st edition

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
 - Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases)
 - Jennings, A.R. (Animal Pathology)
 - Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology)
 Saunders, Philadelphia
 - Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.



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Course specification of postgraduate

- **Pathologia Veterinaria**
- **American Journal of Pathology**
- **Journal of Pathology and Bacteriology**
- **Archive of Pathology**
- **Veterinary Record**
- **Journal of Comparative Pathology**
- **Canadian Journal of comparative Medicine**
- **American Journal of veterinary research**
- **Research on veterinary Science**

Websites:

WWW.Science direct

WWW. Pubmed.com

[WWW.Scholar](http://WWW.Scholar.google.com) google.com

[WWW.welly](http://WWW.wellyinterscience.com) interscience

Course Coordinator

Dr. Nesreen Safwat

Lecturer of Pathology Department
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department, Faculty
of Veterinary Medicine,
Beni-Suef University



Beni Suef University
Faculty of Veterinary Medicine

Course specification

	Topic	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	<u>Course description</u> Introduction	1 st W - 3 rd W	1-14	1-13	-----	1-7
2	Intersexuality Free martinism	3 rd W - 5 th W	1-14	1-13	1-10	1-7
3	Pathology of ovary	6 th W	1-14	1-13	1-10	1-7
4	Pathology of ovary	7 th W	1-14	1-13	1-10	1-7
5	Pathology of fallopian tube	8 th W - 10 th W	1-14	1-13	1-10	1-7
6	Pathology of uterus	11 th W- 12 th W	1-14	1-13	1-10	1-7
7	Pathology of cervix , vagina and vulva	13 th W	1-14	1-13	1-10	1-7
8	Diseases causing abortion	14 th W- 16 th W	1-14	1-13	1-10	1-7
9	Mastitis	17 th W-21 th W	1-14	1-13	1-10	1-7
10	Pathology of testes and scrotum	22 th W- 25 th W	1-14	1-13	1-10	1-7
11	Pathology of spermatic cord and epididymis Pathology of vas deferens , prostate and vesicular glands Pathology of penis and prepuce	26 th W- 27 th W	1-14	1-13	1-10	1-7
12	application of molecular pathology on genital abnormalities	28 th W-31 th W	1-14	1-13	1-10	1-7



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13	application of immunohistochemistry to detect steroid receptors	32th W- 35th W	1-14	1-13	1-10	1-7
14	Students activities	36th W	1-14	1-13	1-10	1-7



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

1-Basic information

Course Code:	M-66
Course title :	Avian Pathology
Program title:	Master programme scientific
Degree:	Master
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Date of course approval:	/9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1-Identify Pathological changes in relation to viral, bacterial, mycotic and parasitic infectious diseases as well nutritional disorders in poultry
- 2-Acquire Mechanism, by which the disease developed, progressed and squealed
- 3-Understand the mechanisms of pathological alterations
- 4-Proficiency basics of research methodologies and scientific.
5. Continuing work on the addition of knowledge in the area of avian pathology.
6. Application of the analytical and advanced techniques in histopathology-based diagnosis.
7. Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
8. Show deep awareness of current problems and new theories in the area of avian pathology and find innovative solutions to solve them
- 9-Commitment to continuing self-development and transfer of knowledge and experience to others
- 10- Decision-making in light of available information

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

- a.1 - Theories and the basics of modern knowledge in the field of avian pathology.
- a.2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a.3 - Illustrate the pathogenesis of the disease
- a.4 -Recall Knowledge about the molecular and cellular response of the living body when exposed to injurious agent
- a.5-Outline the relationship between causes and tissue/organ changes.
- a.6- Record the macroscopic and microscopic alterations.
- a.7- Describe the macroscopic & microscopic tissue changes during diseases.
- a.8-Recognize Knowledge about typing and classification of different



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Department of Pathology

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tissue/organ changes.

- a.9 - Identify The legal and ethical principles for professional practice in the area of avian pathology
- a.10- The principles and basics of quality in professional practice in the area of avian pathology.
- a.11 - Knowledge about the effects on the environment of professional practice and methods of development.
- a.12- Define the specialist subjects, including a command of literature in the field of avian pathology.
- a.13- Discuss the importance of information technology in scientific research.
- a.14- Describe the molecular basis (molecular pathology) of common avian diseases.

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of avian pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 -The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of avian pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and diseased birds.
- b.10 - Differentiate between the different pathological alterations
- b.11- Score the macroscopic and microscopic pathological lesions
- b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13- Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

- c.1- Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c.2- Examine and identify the macroscopic criteria of the pathological alterations.
- c.3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c.5- Write a report commenting on a pathological specimens



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c.6 - Proficiency basic professional skills and modern techniques in the area of avian pathology

c.7 - Writing and evaluation of professional reports

c.8 - Evaluation and development of existing methods and tools in the area of avian pathology

c.9 - The use of technological means to serve the professional practice

c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

d.1- Effective communication in its different forms

d.2 - Use of information technology to serve the development of professional practice

d.3- Teaching others and evaluate their performance

d.4- Self-assessment and continuous learning

d.5- The use of different sources for information and knowledge

d.6- Work in a team and leading teams

d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Avian Pathology (Lec. 2h./week, Pract 2h./week)	<u>Course description</u> Introduction Response of avian tissues to injuries. -Cell and tissue reactions -Vascular reaction in relation to inflammatory reactions	3	12	6	6
	Postmortem examination	1	4	2	2



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Course specification of postgraduate

	Application of immunohistochemical techniques	2	8	4	4
	Molecular pathology applications in poultry diseases	2	8	4	4
	Pathology of viral diseases: - infectious bronchitis - infectious laryngeotracheitis - fowl pox - Marek's disease - leukosis - lymphoproliferative disease of turkeys - infectious bursal disease - avian encephalomyelitis - Viral hepatitis in ducklings - Newcastle - Avian flu - inclusion body hepatitis -	8	32	16	16
	Pathology of Bacterial diseases -fowl typhoid -pullorum -fowl paratyphoid - avian tuberculosis -avian mycoplasmosis -colibacillosis - listeriosis -clostridial diseases -necrotic enteritis -botulism -campylobacter infection -chlamydiosis -staphylococcal arthritis	7	32	14	14



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	- Pathology of Parasitic diseases.	3	12	6	6
	- Pathology of Mycotic diseases	3	12	6	6
	Pathology of nutritional diseases - vitamin deficiency - Mineral deficiency).	4	16	8	8
	Students activities - Collect pathology, specimens. - Writing assays. - Pathology rounds.	3	12	6	6
	Total	36	144	72	72

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	d1-d7



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Practical Exam	-----	b1- b13	c1- c10	d1-d7
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month(s)
Writing exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

Textbook of General Pathology----- (Staff members of the dep.)
 Practical of General Pathology----- (Staff members of the dep.)
 Textbook of Systemic Pathology ----- (Staff members of the dep.)
 Practical of Systemic Pathology----- (Staff members of the dep.)
 Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

J.L. Vegad, (2008) A Color Atlas of Poultry Diseases: An Aid for Farmers and Poultry Professionals” International Book Distributing Co
H. L. Shivaprasad (2006) "Pathology of Birds – An Overview," California Animal Health and Food Safety Laboratory System
Christopher J. Randall MA Vet MB MRCVS, Rodney L. Reece B (2008) "Color Atlas of Avian Histopathology"

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

WWW.Science direct

WWW. Pubmed.com

[WWW.Scholar](http://WWW.Scholar.google.com) google.com

[WWW.welly](http://WWW.wellyinterscience.com) interscience

Course Coordinator

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Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department, Faculty
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Course specification

	Topic	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	<u>Course description</u> Introduction Response of avian tissues to injuries	1 st W-3 rd W	1-14	1-13	-----	1-7
2	Postmortem examination	4 th W	1-14	1-13	1-10	1-7
3	Application of immunohistochemical techniques	5 th W	1-14	1-13	1-10	1-7
4	Molecular pathology applications in poultry diseases	6 th W-7 th W	1-14	1-13	1-10	1-7
5	Pathology of viral diseases	8 th W-9 th W	1-14	1-13	1-10	1-7
6	Pathology of Bacterial diseases	10 th W-17 th W	1-14	1-13	1-10	1-7
7	Pathology of Parasitic diseases.	18 th W -25 th W	1-14	1-13	1-10	1-7
8	Pathology of Mycotic diseases	26 th W- 28 th W	1-14	1-13	1-10	1-7
9	Pathology of nutritional diseases	29 th W- 31 st W	1-14	1-13	1-10	1-7
10	Students activities	32 nd W- 36 th W	1-14	1-13	1-10	1-7



Beni-Suef University
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Department of Pathology

Course specification of postgraduate

1-Basic information

Course Code:	M-67
Course title :	Fish Pathology
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	3 hours per week (1hr theoretical and 2hr practical).
Date of course approval:	/9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1- Identify fish morphology and tissue reactions against injury
- 2.Acquire Mechanism, by which the disease developed, progressed and squealed
3. Understand the mechanisms of pathological alterations by advanced aids and interest to fish diseases of zoonotic importance from the pathological aspect of view.
- 4-Proficiency basics of research methodologies and scientific and continuing work on the addition of knowledge in the area of fish pathology.
5. Application of the analytical and advanced techniques in histopathology-based diagnosis.
6. Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
7. Show deep awareness of current problems and new theories in the area of fish pathology and find innovative solutions to solve them
- 8-Commitment to continuing self-development and transfer of knowledge and experience to others
- 9- Decision-making in light of available information

3- Intended learning outcomes of course methods ILOs)

a- Knowledge and understanding:

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

- a.1 - Theories and the basics of modern knowledge in the field of fish pathology.
- a.2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a.3- Recall Knowledge about the molecular and cellular response of the living body when exposed to toxic agent
- a.4- Outline the relationship between causes and tissue/organ changes.
- a.5- Record the macroscopic and microscopic alterations.
- a.6. Describe the macroscopic & microscopic tissue changes.
- a.7. Recognize Knowledge about typing and classification of different



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Department of Pathology

Course specification of postgraduate

tissue/organ changes.

- a.8. Illustrate the pathogenesis of pathological agents.
- a.9. Identify The legal and ethical principles for professional practice in the area of fish pathology
- a.10. The principles and basics of quality in professional practice in the area of fish pathology.
- a.11. Knowledge about the effects on the environment of professional practice and methods of development.
- a.12. Define the specialist subjects, including a command of literature in the field of fish pathology.
- a.13. Discuss the importance of information technology in scientific research.
- a.14. Describe the molecular basis (molecular pathology) of common fish diseases.

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of fish pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 - The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of fish pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and diseased fish.
- b.10 - Differentiate between the different pathological alterations
- b.11- Score the macroscopic and microscopic pathological lesions
- b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13- Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

- c.1- Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c.2- Examine and identify the macroscopic criteria of the pathological alterations.
- c.3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c.5- Write a report commenting on a pathological specimens



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- c.6 - Proficiency basic professional skills and modern techniques in the area of fish pathology
- c.7 - Writing and evaluation of professional reports
- c.8 - Evaluation and development of existing methods and tools in the area of avian pathology
- c.9 - The use of technological means to serve the professional practice
- c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

- d.1- Effective communication in its different forms
- d.2 - Use of information technology to serve the development of professional practice
- d.3- Teaching others and evaluate their performance
- d.4- Self-assessment and continuous learning
- d.5- The use of different sources for information and knowledge
- d.6- Work in a team and leading teams
- d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Fish Pathology (Lec. 1h./week, Pract 2h./week)	<u>Course description</u> - Introduction - Sampling and preservation - Cell and tissue reaction to injury. - Circulatory response in relation to inflammatory reaction - Malformations	4	12	4	8
	- <u>Introduction</u> - General outline of fish morphology - General tissue reaction against injuries - Field application of fish pathology).	2	6	2	4
	Application of immunohistochemical techniques to detect protein excreted during healing or regeneration.	2	6	2	4



Course specification of postgraduate

	Molecular pathology applications in fish pathology	2	6	2	4
	<u>-Bacterial diseases</u> motile aeromonas septicaemia “M.A.S.”-pseudomonas septicaemia- vibriosis- furunculosis columnaris enetrobacteriaceae – flavobacteriumsp - mycobacteriosis – others). -	6	20	6	12
	<u>Parasitic diseases</u> (Protozoa: Ichthyophthirius multifiliis “ICH” – trichodina and chilodonella – ichthyoboda “costia necatrix”- myxosporidia and microsporidia , <i>Helminths</i> : - trematodes – cestodes . nematodes , <i>Crustaceans</i> : argulus – ergasilus – lernea).	3	9	3	6
	- <u>Fungal diseases</u> (saprolegnia – brachiomycosis – Ichthyophonus hoferi	3	9	3	6
	<u>Viral diseases</u> - (infectious pancreatic necrosis “I.P.N.” – infectious haemopoietic necrosis “I.H.N.” - spring viraemia of carp “SVC” – - channel catfish virus “CCV”).	5	15	5	10
	<u>Nutritional disorders</u> (avitaminosis A, E, C – trace elements deficiency, e.g., zinc, cobalt, copper, selenium).	3	9	3	6
	- <u>Pathology of zoonotic diseases</u> : Bacterial diseases (streptococcus spp. – clostridium spp. “lower motor disease”-Erysipelothrix rhusiopathie- fish sore “septicaemic form” -	3	12	6	6



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	mycobacterium “arthritis” – nocardia spp. – vibrio spp. “septicaemia” - aeromonas spp. “wound infection” - food poisoning, e.g. E.coli, Klebsiella - parasitic diseases: (anasakiasis – diphyllatum – heterophyes) – viral diseases (San Miguel sea lion virus).				
	Students activities - Collect pathology, specimens. - Writing essays. - Pathology rounds.	3	9	3	6
	Total	36	108	36	72

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	d1-d7
Practical Exam	-----	b1- b13	c1- c10	d1-d7
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month
Writing exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments



Beni-Suef University
Faculty of Veterinary Medicine
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Course specification of postgraduate

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

- Textbook of General Pathology----- (Staff members of the dep.)
- Practical of General Pathology----- (Staff members of the dep.)
- Textbook of Systemic Pathology ----- (Staff members of the dep.)
- Practical of Systemic Pathology----- (Staff members of the dep.)
- Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

- Hugh Ferguson, Ellen Bjerkas and Oystein Evensen (2006) Systemic Pathology of Fish
- A Text and Atlas of Normal Tissue Responses in Teleosts, and Their Responses in Disease by Ronald Robert (2007) Fish Pathology
- Pathology of Fishes by William E. Ribelin (Jun 15, 1975)

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

WWW.Science direct



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Department of Pathology

Course specification of postgraduate

WWW.Pubmed.com
[WWW.Scholar](#) google.com
[WWW.welly](#) interscience

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Course specification

	Topic	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	Course description - Introduction -Sampling and preservation - Malformations	1 st W- 4 th W	1-14	1-13	-----	1-7
2	- Introduction	5 th W- 6 th W	1-14	1-13	1-10	1-7
3	Application of immunohistochemical techniques to detect protein excreted during healing or regeneration.	7 th W-8 th W	1-14	1-13	1-10	1-7
4	Molecular pathology applications in fish pathology	9 th W-10 th W	1-14	1-13	1-10	1-7
5	Bacterial diseases	11 th W- 16 th W	1-14	1-13	1-10	1-7
6	Parasitic diseases	17 th W- 19 th W	1-14	1-13	1-10	1-7
7	Fungal diseases	20 th W-22 nd W	1-14	1-13	1-10	1-7
8	Viral diseases	23 rd W- 27 th W	1-14	1-13	1-10	1-7
9	Nutritional disorders	28 th W-30 th W	1-14	1-13	1-10	1-7
10	Pathology of zoonotic diseases	31 st W- 33 rd W	1-14	1-13	1-10	1-7
11	Students activities	34 th W- 36 th W	1-14	1-13	1-10	1-7



Beni-Suef University
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Course specification of postgraduate

1-Basic information

Course Code:	M-68
Course title :	Experimental Pathology
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	3 hours per week (1hr theoretical and 2hr practical).
Date of course approval:	/ 9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1- Identify the lesions and diseases of experimental animals that can interfere with results and their interpretation or seriously affect any experimental animal.
- 2- Acquire the ability to plan for an experiment in the field of pathology and understand Mechanism, by which the disease developed, progressed and squealed
- 3- Understand the mechanisms of pathological alterations and aware with tissue specimen's preparations and full description to macroscopic and microscopic pathological changes using traditional and advanced aids.
- 4- Proficiency basics of research methodologies and scientific and continuing work on the addition of knowledge in the area of experimental pathology
- 5- Application of the analytical and advanced techniques in histopathology-based diagnosis.
- 6- Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
- 7- Show deep awareness of current problems and new theories in the area of experimental pathology and find innovative solutions to solve them
- 8- Commitment to continuing self-development and transfer of knowledge and experience to others
- 9- Decision-making in light of available information

3- Intended learning outcomes of course methods ILOs)

a- Knowledge and understanding:

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

- a.1 - Theories and the basics of modern knowledge in the field of experimental pathology.
- a.2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a.3. Recall Knowledge about the molecular and cellular response of the living
body when exposed to toxic agent
- a.4. Outline the relationship between causes and tissue/organ changes.



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- a.5. Record the macroscopic and microscopic alterations.
- a.6. Describe the macroscopic & microscopic tissue changes.
- a.7. Recognize Knowledge about typing and classification of different tissue/organ changes.
- a.8. Illustrate the pathogenesis of pathological agents.
- a.9. Identify The legal and ethical principles for professional practice in the area of experimental pathology
- a.10. The principles and basics of quality in professional practice in the area of experimental pathology.
- a.11. Knowledge about the effects on the environment of professional practice and methods of development.
- a.12. Define the specialist subjects, including a command of literature in the field of experimental pathology.
- a.13. Discuss the importance of information technology in scientific research.
- a.14. Describe the molecular basis (molecular pathology) of common experimentally induced diseases.

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of experimental pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 - The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of experimental pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and experimentally diseased animals, birds, and fish.
- b.10 - Differentiate between the different pathological alterations
- b.11 - Score the macroscopic and microscopic pathological lesions
- b.12 - Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13 - Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

- c.1 - Select the necessary techniques for sample reception & processing according to the nature



Course specification of postgraduate

of specimen received.

- c.2- Examine and identify the macroscopic criteria of the pathological alterations.
- c.3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c.5- Write a report commenting on a pathological specimens
- c.6 - Proficiency basic professional skills and modern techniques in the area of experimental pathology
- c.7 - Writing and evaluation of professional reports
- c.8 - Evaluation and development of existing methods and tools in the area of experimental pathology
- c.9 - The use of technological means to serve the professional practice
- c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

- d.1- Effective communication in its different forms
- d.2 - Use of information technology to serve the development of professional practice
- d.3- Teaching others and evaluate their performance
- d.4- Self-assessment and continuous learning
- d.5- The use of different sources for information and knowledge
- d.6- Work in a team and leading teams
- d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Experimental Pathology (Lec. 1h./week, Pract 2h./week)	<u>Course description</u>	4	12	4	8
	Introduction - Types of studies according to article under experimentation and objectives of study. - (Design (selection of experimental animal model	2	6	2	4



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	- selection of dose and route of application and duration).				
	- Experimental procedures (allocation of animals to groups – treatment schedule – clinical observation, e.g., food and water consumption, body weight, etc. – sampling schedule for clinical pathology – sacrifice schedule – necropsy, organ weights, collection of tissue and organ specimens for microscopic examination.	2	6	2	4
	- Evaluation of results (morphological alteration – functional alterations and changes in haematological and biochemical parameters – factors affecting evaluation and interpretation of results).	2	6	2	4
	- Pathology of digestive system	3	9	3	6
	- Pathology of respiratory system	2	6	2	4
	- Pathology of urinary system	2	6	2	4
	- Pathology of genital systems	2	6	2	4
	- Pathology of nervous system	2	6	2	4
	- Pathology of cardiovascular system	2	6	2	4
	- Pathology of	2	6	2	4



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	musculoskeletal system				
	- Pathology of lymphatic and hemopoietic system	2	6	2	4
	Postmortem examination	2	6	2	4
	Application of immunohistochemical techniques	2	6	2	4
	Application of molecular pathology	2	6	2	4
	Students activities - Collect pathology, specimens. - Writing assays. - Pathology rounds.	3	9	3	6
	Total	36	108	36	72

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	d1-d7
Practical Exam	-----	b1- b13	c1- c10	d1-d7
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month
Writing exam	December
Practical exam	December
Oral exam	December



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7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

Textbook of General Pathology----- (Staff members of the dep.)
Practical of General Pathology----- (Staff members of the dep.)
Textbook of Systemic Pathology ----- (Staff members of the dep.)
Practical of Systemic Pathology----- (Staff members of the dep.)
Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

-Ramz-I S. and Kumar, V. and Collin, T. (1999) Pathological Basis of Disease, 6th ed .
-Richert, G and Epstein , M. (2008) international review of experimental pathology
- EörsBajusz; G Jasmin (1991)"Methods and achievements in experimental pathology"

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology)
Saunders, Philadelphia
- Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:



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Course specification of postgraduate

WWW.Science direct
WWW. Pubmed.com
[WWW.Scholar](#) google.com
[WWW.welly](#) interscience

Course Coordinator

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Lecturer of Pathology Department
Faculty of Veterinary Medicine,
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Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department, Faculty
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Course specification

	Topic	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	Introduction	1 st W- 4 th W	1-14	1-13	-----	1-7
2	Types of studies according to article under experimentation and objectives of study.	5 th W- 6 th W	1-14	1-13	1-10	1-7
3	Experimental procedures	7 th W- 8 th W	1-14	1-13	1-10	1-7
4	Evaluation of results	9 th W- 10 th W	1-14	1-13	1-10	1-7
5	Pathology of digestive system	11 th W- 13 th W	1-14	1-13	1-10	1-7
6	Pathology of respiratory system	14 th W- 15 th W	1-14	1-13	1-10	1-7
7	Pathology of urinary system	16 th W- 17 th W	1-14	1-13	1-10	1-7
8	Pathology of genital systems	18 th W- 19 th W	1-14	1-13	1-10	1-7
9	Pathology of nervous system	20 th W- 21 st W	1-14	1-13	1-10	1-7
10	Pathology of cardiovascular system	22 nd W- 23 rd W	1-14	1-13	1-10	1-7
11	Pathology of musculoskeletal system	24 th W- 25 th W	1-14	1-13	1-10	1-7
12	Pathology of lymphatic and hemopoietic system	26 th W- 27 th W	1-14	1-13	1-10	1-7
13	Postmortem examination	28 th W-29 th W	1-14	1-13	1-10	1-7
14	Application of immunohistochemical techniques	30 th W-31 st W	1-14	1-13	1-10	1-7
15	Application of molecular pathology	32 nd W- 33 rd W	1-14	1-13	1-10	1-7



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Course specification

16	Students activities	34 th W- 36 th W	1-14	1-13	1-10	1-7
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Course specification of postgraduate

1-Basic information

Course Code:	M-69
Course title :	Toxicological Pathology
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Date of course approval:	/9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1- Identify the lesions due to toxicity to animals that can interfere with results.
- 2- Acquire the ability to plan for an experiment in the field of toxicological pathology and understand Mechanism, by which the disease developed, progressed and squealed
- 3- Understand the mechanisms of pathological alterations and aware with tissue specimen's preparations and full description to macroscopic and microscopic pathological changes using traditional and advanced aids.
- 4- Proficiency basics of research methodologies and scientific and continuing work on the addition of knowledge in the area of toxicological pathology
- 5- Application of the analytical and advanced techniques in histopathology-based diagnosis.
- 6- Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
- 7- Show deep awareness of current problems and new theories in the area of toxicological pathology and find innovative solutions to solve them
- 8- Commitment to continuing self-development and transfer of knowledge and experience to others
- 9- Decision-making in light of available information

3- Intended learning outcomes of course methods ILOs)

a- Knowledge and understanding:

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

- a.1 - Theories and the basics of modern knowledge in the field of toxicological pathology.
- a.2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a.3 - Acquire knowledge on different aspects and mechanism of toxicity with reference to environmental toxicants and pathogenesis of infectious pollutants.
- a.4- Identify the pathological lesions and pathogenesis and tissue reaction to infectious pollutants.



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- a.5- Understand Mechanism, by which the disease developed, progressed and squealed.
- a.6- Aware with tissue specimens preparations and full description to macroscopic and microscopic pathological changes with the aid of advanced techniquesa
- a.7- Describe the macroscopic & microscopic tissue changes of the toxic agents
- a.8- Identify The legal and ethical principles for professional practice in the area of toxicological pathology
- a.9 - The principles and basics of quality in professional practice in the area of toxicological pathology.
- a.10 -Knowledge about the effects on the environment of professional practice and methods of development.
- a.11-Define the specialist subjects, including a command of literature in the field of toxicological pathology.
- a.12- Discuss the importance of information technology in scientific research.
- a.13- Describe the molecular basis (molecular pathology) of common toxicological diseases.

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of toxicological pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 -The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of toxicological pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and experimentally diseased animals, birds, and fish.
- b.10 - Differentiate between the different pathological alterations
- b.11- Score the macroscopic and microscopic pathological lesions
- b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13- Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

- c.1- Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c.2- Examine and identify the macroscopic criteria of the pathological alterations.
- c.3- Examine and identify the microscopic criteria of the pathological alterations using



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modern techniques.

c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques

c.5- Write a report commenting on a pathological specimens

c.6 - Proficiency basic professional skills and modern techniques in the area of toxicological pathology

c.7 - Writing and evaluation of professional reports

c.8 - Evaluation and development of existing methods and tools in the area of toxicological pathology

c.9 - The use of technological means to serve the professional practice

c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

d.1- Effective communication in its different forms

d.2 - Use of information technology to serve the development of professional practice

d.3- Teaching others and evaluate their performance

d.4- Self-assessment and continuous learning

d.5- The use of different sources for information and knowledge

d.6- Work in a team and leading teams

d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Toxicological Pathology (Lec. 2h./week, Pract 2h./week)	<u>Course description</u> Introduction Response of tissues to injuries. -Cell and tissue reactions -Vascular reaction in relation to inflammatory reactions	3	12	6	6
	Toxins, xenobiotics, and toxicity: - Classification. - Absorption of toxins and their routes. - Distribution, storage and storage sites. - Brain and placental barrier. -Biotransformation of xenobiotics, detoxification and bio activation	4	16	8	8



Course specification of postgraduate

	(phase I: cytochrome p-450 and other enzymes –(phase II: conjugation). - Factors affecting toxic effects: - Genetic factors (species. -Dose and site of action. - Metabolic factors (induction or depletion).				
	Mechanism of toxic cell injury : - Covalent binding to cell acromolecules. - Elimination of oxygen radicals and oxidation stress. - Peroxidation of cell membrane lipid. - Protein-thiol depletion. - Alteration in calcium homeostasis.	2	8	4	4
	- Environmental pollutants (gases, chemicals, particulates) and pneumonconiosis	2	8	4	4
	- Toxicologic pathology of relevant optional system (mechanism – response – lesion	5	20	10	10
	- Local injury and application of molecular pathology and immunohistochemistry	7	28	14	14
	Hepatotoxicity	3	12	6	6
	-Pathogenesis and tissue reaction to infectious pollutants (viral, bacterial, mycotic, parasitic).	3	12	6	6
	- Nephrotoxicity - - Teratogenic effect	4	16	8	8
	Students activities - Collect pathology, specimens. - Writing assays. - Pathology rounds.	3	12	6	6
	Total	36	144	72	72

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of



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multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

- * Samples collections and research from the internet and library
- * panel discussions (Histopathology and Gross pathology rounds).
- *E-Learning (using and activation of electronic course of pathology – <http://cms.nelc.edu.eg>)

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	
Practical Exam	-----	b1- b13	c1- c10	
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month
Writing exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

Textbook of General Pathology----- (Staff members of the dep.)
 Practical of General Pathology----- (Staff members of the dep.)
 Textbook of Systemic Pathology ----- (Staff members of the dep.)
 Practical of Systemic Pathology----- (Staff members of the dep.)
 Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

- Wanda M. Haschek & Colin G. Rousseaux (1998) " Fundamentals of Toxicologic Pathology" Academic Press; 1st edition.
 - Foster , R.J. (2010) Toxicologic Pathology, AstraZeneca R&D Alderley Park, UK.



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Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

- Deschl U. and Mohr, U (2010) Experimental and Toxicologic Pathology.

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

WWW.Science direct
WWW. Pubmed.com
[WWW.Scholar](http://WWW.Scholar.google.com) google.com
[WWW.welly](http://WWW.wellyinterscience.com) interscience

Course Coordinator

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	Topic	week	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	Introduction	1 st W- 3 rd W	1-14	1-13	-----	1-7
2	Toxins, xenobiotics, and toxicity	4 th W- 7 th W	1-14	1-13	1-10	1-7
3	Mechanism of toxic cell injury	8 th W- 9 th W	1-14	1-13	1-10	1-7
4	Environmental pollutants	10 th W-11 th W	1-14	1-13	1-10	1-7
5	Toxicologic pathology of relevant optional system	12 th W-16 th W	1-14	1-13	1-10	1-7
6	Local injury and application of molecular pathology and immunohistochemistry	17 th W-23 rd W	1-14	1-13	1-10	1-7
7	Hepatotoxicity	24 th W-26 th W	1-14	1-13	1-10	1-7
8	Pathogenesis and tissue reaction to infectious pollutants	27 th W-30 th W	1-14	1-13	1-10	1-7
9	Nephrotoxicity	31 st W-32 nd W	1-14	1-13	1-10	1-7
10	Teratogenic effect	33 rd W-34 th W	1-14	1-13	1-10	1-7
11	Student activities	35 th W-36 th W	1-14	1-13	1-10	1-7



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Course specification of postgraduate

1-Basic information

Course Code:	M-70
Course title :	Surgical Pathology
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical)
Date of course approval:	/9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1- Identify Pathological changes in relation to damage induced by physical agents, superficial infections, regeneration and healing, malformations, tissue grafting and organ transplantation.
- 2- Acquire the ability to plan for an experiment in the field of surgical pathology and understand Mechanism, by which the disease developed, progressed and squealed
- 3- Understand the mechanisms of pathological alterations and aware with tissue specimen's preparations and full description to macroscopic and microscopic pathological changes using traditional and advanced aids.
- 4- Proficiency basics of research methodologies and scientific and continuing work on the addition of knowledge in the area of toxicological pathology
- 5- Application of the analytical and advanced techniques in histopathology-based diagnosis.
- 6- Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
- 7- Show deep awareness of current problems and new theories in the area of surgical pathology and find innovative solutions to solve them
- 8- Commitment to continuing self-development and transfer of knowledge and experience to others
- 9- Decision-making in light of available information

3- Intended learning outcomes of course methods ILOs)

a- Knowledge and understanding:

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

- a.1 - Theories and the basics of modern knowledge in the field of surgical pathology.
- a.2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a.3 - Acquire knowledge on different aspects and mechanism of healing with reference to surgical management to each system in different animals.
- a.4- Identify the pathological lesions and pathogenesis and tissue reaction related to the



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specific surgical interference.

- a.5- Understand Mechanism, by which the disease developed, progressed and squealed.
- a.6- Aware with tissue specimens preparations and full description to macroscopic and microscopic pathological changes with the aid of advanced techniques.
- a.7- Describe the macroscopic & microscopic tissue changes related to different surgical techniques.
- a.8- Identify The legal and ethical principles for professional practice in the area of surgical pathology
- a.9 - The principles and basics of quality in professional practice in the area of surgical pathology.
- a.10 -Knowledge about the effects on the environment of professional practice and methods of development.
- a.11-Define the specialist subjects, including a command of literature in the field of surgical pathology.
- a.12- Discuss the importance of information technology in scientific research.

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of surgical pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 -The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of surgical pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and experimentally diseased animals, birds, and fish.
- b.10 - Differentiate between the different pathological alterations
- b.11- Score the macroscopic and microscopic pathological lesions
- b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13- Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

- c.1- Select the necessary techniques for sample reception & processing according to the nature of specimen received.
- c.2- Examine and identify the macroscopic criteria of the pathological alterations.



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- c.3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c.5- Write a report commenting on a pathological specimens
- c.6 - Proficiency basic professional skills and modern techniques in the area of surgical pathology
- c.7 - Writing and evaluation of professional reports
- c.8 - Evaluation and development of existing methods and tools in the area of surgical pathology
- c.9 - The use of technological means to serve the professional practice
- c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

- d.1- Effective communication in its different forms
- d.2 - Use of information technology to serve the development of professional practice
- d.3- Teaching others and evaluate their performance
- d.4- Self-assessment and continuous learning
- d.5- The use of different sources for information and knowledge
- d.6- Work in a team and leading teams
- d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Surgical Pathology (Lec. 2h./week, Pract 2h./week)	<u>Course description</u> - Introduction -Sampling and preservation - Cell and tissue reaction to injury. -Circulatory response in relation o inflammatory reaction - Malformations	4	16	8	8
	Application of immunohistochemical techniques to detect	2	8	4	4



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	protein excreted during healing or regeneration.				
	Molecular pathology applications in surgical pathology	2	8	4	4
	- Regeneration and repair of soft tissue - Regeneration and repair of surgical wound - Regeneration and repair of contaminated wound - Regeneration and repair of parenchymatous organs - Regeneration and repair of bone.	8	32	16	16
	- Angiopathy (pathology of blood vessels). - Pathology of the skin. - Pathology of muscles - Pathology of tendons. - Pathology of joints. - Pathology of bone. *Diseases due to nutritional deficiency *Infectious diseases of bone *Neoplasm	7	32	14	14
	Tissue grafting - Organ transplantation and reaction	3	12	6	6
	- Pathology of hoof affections. - Pathology of eye affections. - Pathology of central nervous tissue - Pathology of peripheral nerves	3	12	6	6
	Pathology of hemic system - Pathology of lymphatic system	4	16	8	8



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Course specification of postgraduate

	Students activities - Collect pathology, specimens. - Writing assays. - Pathology rounds.	3	12	6	6
	total	36	144	72	72

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – [http://:cms.nelc.edu.eg](http://cms.nelc.edu.eg))

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b12	-----	
Practical Exam	-----	b1- b12	c1- c10	
Oral Exam	a1- a14	b1- b12	-----	d1-d7

7.2. Assessment schedules

Method	Month
Writing exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

8.1. Notes and books

Textbook of General Pathology----- (Staff members of the dep.)
Practical of General Pathology----- (Staff members of the dep.)
Textbook of Systemic Pathology ----- (Staff members of the dep.)
Practical of Systemic Pathology----- (Staff members of the dep.)
Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

-Gallin, J. and Synder , R (1999), Inflammation 3rd.ed. Lippincott Williams,Wilkins. Philadelphia.
-Diana Weedman Molavi "The Practice of Surgical Pathology: A Beginner's Guide to the Diagnostic Process" (2008)
- Paolo Gattuso MD, Vijaya B. Reddy MD, Odile David MD and Daniel J. Spitz MD "Differential Diagnosis in Surgical Pathology: Expert Consult"(2009)

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia
- Jubb *et al.*, (2007) (pathology of domestic animals) Saunders, Philadelphia

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.
- Pathologia Veterinaria
- American Journal of Pathology
- Journal of Pathology and Bacteriology
- Archive of Pathology
- Veterinary Record
- Journal of Comparative Pathology
- Canadian Journal of comparative Medicine
- American Journal of veterinary research
- Research on veterinary Science

Websites:

WWW.Science direct
 WWW. Pubmed.com
[WWW.Scholar google.com](http://WWW.Scholar.google.com)
[WWW.welly interscience](http://WWW.wellyinterscience)

Course Coordinator

Dr. Nesreen Safwat

Lecturer of Pathology Department
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department, Faculty
of Veterinary Medicine,
Beni-Suef University



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

	Topic	Weeks	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	Introduction	1 st W- 4 th W	1-12	1-13	-----	1-7
2	Application of immunohistochemical techniques to detect protein excreted during healing or regeneration.	5 th W- 6 th W	1-12	1-11	1-10	1-7
3	Molecular pathology applications in surgical pathology	7 th W- 8 th W	1-12	1-11	1-10	1-7
4	Regeneration and repair of soft tissue	9 th W- 10 th W	1-12	1-13	1-10	1-7
5	Regeneration and repair of surgical wound contaminated wound	11 th W-12 th W	1-12	1-11	1-10	1-7
6	Regeneration and repair of parenchymatous organs	13 th W-14 th W	1-12	1-11	1-10	1-7
7	Regeneration and repair of bone.	15 th W-16 th W	1-12	1-11	1-10	1-7
8	Angiopathy (pathology of blood vessels).	17 th W-18 th W	1-12	1-11	1-10	1-7
9	Pathology of the skin, muscles, tendons, joints, and bone.	19 th W- 24 th W	1-12	1-13	1-10	1-7
10	Tissue grafting	25 th W- 27 th W	1-12	1-13	1-10	1-7
11	Pathology of hoof affections, eye affections, central nervous tissue, and peripheral nerves	28 th W-30 th W	1-12	1-13	1-10	1-7
12	Pathology of hemic system and lymphatic system	31 st W- 34 th W	1-12	1-13	1-10	1-7
13	Students activities	35 th W-36 th W	1-12	1-13	1-10	1-7



Beni-Suef University
Faculty of Veterinary Medicine
Department of Pathology

Course specification of postgraduate

1-Basic information

Course Code:	M-71
Course title :	Genetic Pathology
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	3 hours per week (1hr theoretical and 2hr practical).
Date of course approval:	/9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1- Acquire knowledge about the changes and abnormalities of the genetic makeup and mechanisms of hereditary nature that are associated with morphological abnormalities and their differentiation from abnormalities due to non-genetic causes by advanced aids.
- 2- Acquire the ability to plan for an experiment in the field of genetic pathology and understand Mechanism, by which the disease developed, progressed and squealed
- 3- Understand the mechanisms of pathological alterations and aware with tissue specimen's preparations and full description to macroscopic and microscopic pathological changes using traditional and advanced aids.
- 4- Proficiency basics of research methodologies and scientific and continuing work on the addition of knowledge in the area of genetic pathology
- 5- Application of the analytical and advanced techniques in histopathology-based diagnosis.
- 6- Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
- 7- Show deep awareness of current problems and new theories in the area of genetic pathology and find innovative solutions to solve them
- 8- Commitment to continuing self-development and transfer of knowledge and experience to others
- 9- Decision-making in light of available information

3- Intended learning outcomes of course methods ILOs)

a- Knowledge and understanding:

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

- a.1 - Theories and the basics of modern knowledge in the field of genetic pathology.
- a.2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a.3 - Recall Knowledge about the molecular and cellular response of the living body when exposed to genetic cause.
- a.4- Identify the pathological lesions and pathogenesis and tissue reaction related to the specific surgical interference.



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- a.5- Understand Mechanism, by which the disease developed, progressed and squealed.
- a.6- Aware with tissue specimens preparations and full description to macroscopic and microscopic pathological changes with the aid of advanced techniques.
- a.7- Describe the macroscopic & microscopic tissue changes related to different genetic causes.
- a.8- Identify The legal and ethical principles for professional practice in the area of genetic pathology
- a.9 - The principles and basics of quality in professional practice in the area of genetic pathology.
- a.10 -Knowledge about the effects on the environment of professional practice and methods of development.
- a.11-Define the specialist subjects, including a command of literature in the field of genetic pathology.
- a.12- Discuss the importance of information technology in scientific research.
- a.13- Discuss the importance of information technology in scientific research.
- a.14- Describe the molecular basis (molecular pathology) of common genetic diseases

b-Intellectual skills

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

- b.1 - Analysis and evaluation of information in the field of genetic pathology
- b.2 - Specialized problem-solving based on the available data
- b.3 - Conducting research studies adding to the knowledge
- b.4 -The formulation of scientific papers.
- b.5 - Risk assessment in professional practice and planning for the development of performance in the area of genetic pathology
- b.6 - Making career decisions in the contexts of different professional
- b.7 - Innovation / Creativity
- b.8 - The dialogue and discussion based on evidence.
- b.9 - Discriminate between tissue/organ appearance in health and experimentally diseased animals, birds, and fish.
- b.10 - Differentiate between the different pathological alterations
- b.11- Score the macroscopic and microscopic pathological lesions
- b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.
- b.13- Integrate the pathological alterations with genetic agents

C- Professional and practical skills

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

- c.1- Select the necessary techniques for sample reception & processing according to the nature



Course specification of postgraduate

of specimen received.

- c.2- Examine and identify the macroscopic criteria of the pathological alterations.
- c.3- Examine and identify the microscopic criteria of the pathological alterations using modern techniques.
- c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques
- c.5- Write a report commenting on a pathological specimens
- c.6 - Proficiency basic professional skills and modern techniques in the area of genetic pathology
- c.7 - Writing and evaluation of professional reports
- c.8 - Evaluation and development of existing methods and tools in the area of genetic pathology
- c.9 - The use of technological means to serve the professional practice
- c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

- d.1- Effective communication in its different forms
- d.2 - Use of information technology to serve the development of professional practice
- d.3- Teaching others and evaluate their performance
- d.4- Self-assessment and continuous learning
- d.5- The use of different sources for information and knowledge
- d.6- Work in a team and leading teams
- d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents

Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Genetic Pathology (Lec. 1h./week, Pract 2h./week)	<u>Course description</u> - Introduction -Sampling and preservation - Cell and tissue reaction to injury. -Circulatory response in relation to inflammatory reaction - Malformations	5	15	5	10
	- Genomic imperfections Chromosomal abnormalities. - Errors in histogenesis - disturbances of growth	4	12	4	8



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	<ul style="list-style-type: none"> - Congenital anomalies of hereditary origin. - Genetics and immune response. 				
	<ul style="list-style-type: none"> - Innate resistance to diseases. - Genetics and tumour formation. - Non-genetic biologic variations (teratology and teratogens) - In-vitro fertilization and transgenic animals 	4	12	4	8
	<ul style="list-style-type: none"> -Malformation and disturbance of growth of digestive system - Malformation and disturbance of growth of respiratory system - Malformation and disturbance of growth of urinary system 	4	12	4	8
	<ul style="list-style-type: none"> - Malformation and disturbance of growth of cardiovascular system - Malformation and disturbance of growth of genital system 	4	12	4	8
	Postmortem examination	3	9	3	6
	Ultra structure of malformed tissues	4	12	4	8
	Molecular detections of genetics	5	15	5	10
	Students activities <ul style="list-style-type: none"> - Collect pathology, specimens. - Writing assays. - Pathology rounds. 	3	9	3	6
	total	36	72	36	108



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Course specification of postgraduate

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – [http://:cms.nelc.edu.eg](http://cms.nelc.edu.eg))

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	
Practical Exam	-----	b1- b13	c1- c10	
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month
Writing exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

Textbook of General Pathology----- (Staff members of the dep.)

Practical of General Pathology----- (Staff members of the dep.)

Textbook of Systemic Pathology ----- (Staff members of the dep.)

Practical of Systemic Pathology----- (Staff members of the dep.)

Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)



Beni-Suef University
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Department of Pathology

Course specification of postgraduate

8.2. Essential books:

- "Molecular Genetic Testing in Surgical Pathology, **John D. Pfeifer (2005)**
- **Ramz-I S. and Kumar, V. and Collin, T. (1999)** - Pathological Basis of Disease, 6th ed .
- Molecular Genetic Pathology - **Liang Cheng and David Zhang (2008)**

8.3. Recommended texts

- Olsen, Richard G. **(2005) (Comparative Pathobiology and Viral Diseases)**
- Boca Raton, Fla and Cheville, Norman F. **(Cytopathology in Viral Diseases)**
- Jennings, A.R. **(Animal Pathology)**
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al **(Atlas of veterinary Pathology)**
Saunders, Philadelphia
- Thomson, R.G. **(2000) (General Veterinary Pathology) Saunders, Philadelphia**
- Jubb *et al.*, **(2007) (pathology of domestic animals) Saunders, Philadelphia**

Journals:

- **Egyptian Journal of Comparative Pathology and Clinical Pathology.**
- **Pathologia Veterinaria**
- **American Journal of Pathology**
- **Journal of Pathology and Bacteriology**
- **Archive of Pathology**
- **Veterinary Record**
- **Journal of Comparative Pathology**
- **Canadian Journal of comparative Medicine**
- **American Journal of veterinary research**
- **Research on veterinary Science**

Websites:

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WWW. Pubmed.com
[WWW.Scholar google.com](http://WWW.Scholar.google.com)
[WWW.welly interscience](http://WWW.wellyinterscience.com)

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Head of the department

Prof. Dr. Khaled Ali Ahmed

Professor and Head of Pathology department, Faculty
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Course specification

	Topic	Weeks	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	Introduction	1 st W- 5 th W	1-14	1-13	-----	1-7
2	Genomic imperfections	6 th W- 10 th W	1-14	1-13	1-10	1-7
3	Innate resistance to diseases, Genetics and tumour formation, Non-genetic biologic variations (teratology and teratogens) In-vitro fertilization and transgenic animals	11 th W- 14 th W	1-14	1-13	1-10	1-7
4	Malformation and disturbance of growth of digestive system , respiratory system, and urinary system	15 th W- 18 th W	1-14	1-13	1-10	1-7
5	Malformation and disturbance of growth of cardiovascular system and genital system	19 th W- 22 nd W	1-14	1-13	1-10	1-7
6	Postmortem examination	23 rd W- 25 th W	1-14	1-13	1-10	1-7
7	Ultra structure of malformed tissues	26 th W- 30 th W	1-14	1-13	1-10	1-7
8	Molecular detections of genetics	31 st W- 35 th W	1-14	1-13	1-10	1-7
9	Students activities	36 th W	1-14	1-13	1-10	1-7



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Course specification of postgraduate

1-Basic information

Course Code:	M-72
Course title :	ImmunoPathology
Program title:	Master program scientific
Degree:	Master
Contact hours/ week	3 hours per week (1hr theoretical and 2hr practical)
Date of course approval:	/9/2017

2-Professional information

Overall aims of course:

This course aims to:

- 1- Study of resistance of the body against bacterial, viral, and parasitic infections and different forms of reactions of the immune system.
- 2-Interest is also given to autoimmune diseases and immune deficiency.
- 3- Understand the mechanisms of pathological alterations and aware with tissue specimen's preparations and full description to macroscopic and microscopic pathological changes using traditional and advanced aids.
- 4- Proficiency basics of research methodologies and scientific and continuing work on the addition of knowledge in the area of immunopathology
- 5- Application of the analytical and advanced techniques in histopathology-based diagnosis.
- 6- Integration of specialized knowledge with relevant knowledge and discovering the developer of the relations
- 7- Show deep awareness of current problems and new theories in the area of immunopathology and find innovative solutions to solve them
- 8- Commitment to continuing self-development and transfer of knowledge and experience to others
- 9- Decision-making in light of available information

3- Intended learning outcomes of course methods ILOs)

a- Knowledge and understanding:

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

- a.1 - Theories and the basics of modern knowledge in the field of immunopathology.
- a.2 - Fundamentals and methodologies and ethics of scientific research and the various tools
- a.3 - Recall Knowledge about the molecular and cellular response of the living body when exposed to genetic cause.
- a.4- Identify the pathological lesions and pathogenesis and tissue reaction related to the specific surgical interference.
- a.5- Understand Mechanism, by which the disease developed, progressed and squealed.
- a.6- Aware with tissue specimens preparations and full description to macroscopic and



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microscopic pathological changes with the aid of advanced techniques.

a.7- Describe the macroscopic & microscopic tissue changes related to different immunological causes.

a.8- Identify The legal and ethical principles for professional practice in the area of immunopathology

a.9 - The principles and basics of quality in professional practice in the area of immunopathology .

a.10 -Knowledge about the effects on the environment of professional practice and methods of development.

a.11-Define the specialist subjects, including a command of literature in the field of immunopathology.

a.12- Discuss the importance of information technology in scientific research.

a.13- Describe the molecular basis (molecular pathology) of common immunopathological disorders.

b-Intellectual skills

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

b.1 - Analysis and evaluation of information in the field of immunopathology

b.2 - Specialized problem-solving based on the available data

b.3 - Conducting research studies adding to the knowledge

b.4 -The formulation of scientific papers.

b.5 - Risk assessment in professional practice and planning for the development of performance in the area of immunopathology

b.6 - Making career decisions in the contexts of different professional

b.7 - Innovation / Creativity

b.8 - The dialogue and discussion based on evidence.

b.9 - Discriminate between tissue/organ appearance in health and experimentally diseased animals, birds, and fish.

b.10 - Differentiate between the different pathological alterations

b.11- Score the macroscopic and microscopic pathological lesions

b.12- Interpret correctly the pathological data obtained by the macroscopic and microscopic examination to reach final diagnosis using advanced tools as immunohistochemistry and molecular pathology.

b.13- Integrate the pathological alterations with injurious agents

C- Professional and practical skills

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

c.1- Select the necessary techniques for sample reception & processing according to the nature of specimen received.

c.2- Examine and identify the macroscopic criteria of the pathological alterations.

c.3- Examine and identify the microscopic criteria of the pathological alterations using



Course specification of postgraduate

modern techniques.

c.4- Perform diagnosis and full description for the pathological picture based on the gross and histopathological examination and advanced techniques

c.5- Write a report commenting on a pathological specimens

c.6 - Proficiency basic professional skills and modern techniques in the area of immunopathology

c.7 - Writing and evaluation of professional reports

c.8 - Evaluation and development of existing methods and tools in the area of immunopathology .

c.9 - The use of technological means to serve the professional practice

c.10- Planning for the development of professional practice and development

d- General and transferable skills

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

d.1- Effective communication in its different forms

d.2 - Use of information technology to serve the development of professional practice

d.3- Teaching others and evaluate their performance

d.4- Self-assessment and continuous learning

d.5- The use of different sources for information and knowledge

d.6- Work in a team and leading teams

d.7- Management of scientific meetings and the ability to manage time

4-Topics and contents					
Course	Topic	week	Total (hr)	Lectures (hr)	Practical (hr)
Immunopathology (Lec. 1h./week, Pract 2h./week)	<u>Course description</u> - Introduction -Sampling and preservation - Cell and tissue reaction to injury. -Circulatory response in relation to inflammatory reaction - Malformations	6	18	6	12
	- Vascular phenomenon of inflammatory reaction - Cellular reaction Chemical mediators -Classification of inflammation -Acute inflammation	2	6	2	4



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	-Chronic inflammation -Outcome of inflammation -Inflammation as a consequence of immune reaction.				
	-Type I hypersensitivity -Type II hypersensitivity -Type III hypersensitivity -Type IV hypersensitivity -Autoimmunity -Organs-specific autoimmune diseases -Primary immune deficiencies	2	6	2	4
	-Pathogenesis of bacterial infection in cattle -Pathological pictures of bacterial infection in cattle -Pathogenesis of bacterial infection in sheep -Pathological pictures of bacterial infection in sheep -Pathogenesis of bacterial infection in equine -Pathological pictures of bacterial infection in equine -Pathogenesis and pathological lesions of bacterial infection in pet animals	6	20	6	12
	- Pathogenesis of viral infection in cattle -Pathological pictures of viral infection in cattle -Pathogenesis of viral infection in sheep	4	12	4	8



Course specification of postgraduate

	-Pathological pictures of viral infection in sheep -Pathogenesis and pathological lesions of viral infection in equine -Pathogenesis and pathological lesions of viral infection in pet animals				
	- Pathogenesis and pathological lesions of parasitic infection - Pathogenesis and pathological lesions of mycotic infection	4	12	4	8
	-Postmortem examination -immunohistochemical examination -Molecular pathological examination	5	15	5	10
	Students activities - Collect pathology, specimens. - Writing essays. - Pathology rounds.	3	9	3	6
	Total	36	108	36	72

5-Teaching and learning methods

5.1- Lectures: developed relies on student participation and discussion with the aid of multimedia

5.2- Practical: an electronic show with macroscopic and microscopic screening of pathological lesions.

5.3- Self-learning activities:

* Samples collections and research from the internet and library

* panel discussions (Histopathology and Gross pathology rounds).

*E-Learning (using and activation of electronic course of pathology – [http://:cms.nelc.edu.eg](http://cms.nelc.edu.eg))

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods
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Course specification of postgraduate

	K&U	I.S	P&P.S	G.S
Written Exam	a1- a14	b1- b13	-----	
Practical Exam	-----	b1- b13	c1- c10	
Oral Exam	a1- a14	b1- b13	-----	d1-d7

7.2. Assessment schedules

Method	Month
Writing exam	December
Practical exam	December
Oral exam	December

7.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	50%
Practical exam	25%
Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

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Practical of General Pathology----- (Staff members of the dep.)
Textbook of Systemic Pathology ----- (Staff members of the dep.)
Practical of Systemic Pathology----- (Staff members of the dep.)
Textbook of Pathology of Specific Diseases. --- (Staff members of the dep.)

8.2. Essential books:

- John D. Pfeifer (2005) - Stewart Sell (1996) Immunology, Immunopathology and Immunity
- Gallin, J. and Snyder, R (1999), Inflammation 3rd.ed. Lippincott, Williams, Wilkins.
- Leon Neumann and Sophie Meier (2010) Veterinary Immunology and Immunopathology

8.3. Recommended texts

- Olsen, Richard G. (2005) (Comparative Pathobiology and Viral Diseases)
- Boca Raton, Fla and Cheville, Norman F. (Cytopathology in Viral Diseases)
- Jennings, A.R. (Animal Pathology)
- Bailliere, Tindall and Cassell, London Mouwen, J.M. et al (Atlas of veterinary Pathology) Saunders, Philadelphia
- Thomson, R.G. (2000) (General Veterinary Pathology) Saunders, Philadelphia
- Jubb *et al.*, (2007) (pathology of domestic animals) Saunders, Philadelphia

Journals:

- Egyptian Journal of Comparative Pathology and Clinical Pathology.



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Course specification of postgraduate

- **Pathologia Veterinaria**
- **American Journal of Pathology**
- **Journal of Pathology and Bacteriology**
- **Archive of Pathology**
- **Veterinary Record**
- **Journal of Comparative Pathology**
- **Canadian Journal of comparative Medicine**
- **American Journal of veterinary research**
- **Research on veterinary Science**

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WWW. Pubmed.com

[WWW.Scholar](http://WWW.Scholar.google.com) google.com

[WWW.welly](http://WWW.wellyinterscience.com) interscience

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Head of the department

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Course specification

	Topic	Weeks	Intended learning outcomes of course (ILOs)			
			K and U (a)	I.S (b)	P.P.S (c)	G.T (d)
1	Introduction, Sampling and preservation, Cellular and tissue reaction to injury, Vascular response to agents, and Inflammation	1 st W- 6 th W	1-13	1-13	-----	1-7
2	Inflammation as a consequence of immune reaction.	7 th W- 8 th W	1-13	1-13	1-10	1-7
3	Types of hypersensitivity& Autoimmunity	9 th W- 10 th W	1-13	1-13	1-10	1-7
4	Pathogenesis and pathologic picture of bacterial infection in cattle, sheep, equine, and pet animals	11 th W- 16 th W	1-13	1-11	1-10	1-7
5	Pathogenesis and pathologic picture of viral infection in cattle, sheep, equine, and pet animals	17 th W- 20 th W	1-13	1-13	1-10	1-7
6	Pathogenesis and pathological lesions of parasitic infection	21 st W- 22 nd W	1-13			
7	Pathogenesis and pathological lesions of mycotic infection	23 rd W- 24 th W	1-13	1-11	1-10	1-7
8	Postmortem examination, Immunohistochemical examination , and Molecular pathological examination	25 th W- 30 th W	1-13	1-11	1-10	1-7
9	Students activities	31 st W- 33 rd	1-13	1-13	1-10	1-7