Beni-Suef University
Faculty of Veterinary Medicine
Department of Biochemistry

Program Specification for Ph Degree
2017-2018

A-Basic information:

1- Course title: *PhD VSC.* **Specialty:-Biochemistry**
2- **Program type:** *Single*
3- **Department offering program: Biochemistry**
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-Recognize all theories, principles and basics of his/her area of biochemistry learning and other related sciences.
2- Provide graduates the opportunity to communicate properly with others and acquire ability to lead a team consisting of different provisional context.
3- To ensure that graduates reserve a comprehensive theoretical and advanced researches in biochemistry and molecular biology.
4- Develop new techniques and tools to be applied in the field of biochemistry, clinical biochemistry and molecular biology.
5- Integrate the acquired knowledge about biochemistry with the other related sciences to develop the relations in between.

2- Intended learning outcomes of course (ILOs):

a- Knowledge and understanding:

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

a1- Describe advanced and applied research techniques used in the field of biochemistry

a2- Apply their knowledge and understanding of biochemistry to the critical analysis and discussion of the scientific literature.

a3- Understand the principals and importance of high quality practices in the field of biochemistry, clinical biochemistry and molecular biology.

b- Intellectual capacity:

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

b1- Identify and define research problems in the field of biochemistry and molecular biology and apply it in scientific research

b2- Critically evaluate the research data and apply analytical method to develop new approach to deal with the research questions.

b3- Develop methods and advanced biochemical techniques in the field of biochemistry and molecular biology.

b4-Analyze and evaluate knowledge related to biochemistry and clinical biochemistry and interpret it to solve the related problems.

b5-Solve problems related to biochemistry and clinical biochemistry using on the available data.

b6- Take decisions using the available information in different practices of biochemistry and clinical biochemistry.

c- Professional and practical skills:

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

c1- Apply the experimental design and or research project .

c2- Select and perform relevant statistical analysis on data obtained for their own research .

c3- Plan a research project in the field of biochemistry and molecular biology with a consideration to technical, ethical and safety issues and associated costs.

C4-Write and evaluate reports related to clinical biochemical analysis.

C5-Assess different available tools and methods regarding biochemical analysis.

d- General and transferable skills:

On successful completion of this program the graduate should be able to:

dl- Demonstrate an ability to learn independently in preparation for a career of lifelong learning .

d2- Demonstrate interpersonal skills and team working ability by the successful completion of collaborative learn assignment and the honors researches projects

d3- present research finding in oral and written from using arrange of appropriate soft ware (e.g., power point , word , excel and data base).

3- 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 .
ARS (National Academic Reference Standards) prepared by NAQAAE.

4- Curriculum Structure and Contents

a-Program duration: 48 weeks.

b-Program structure: 3-5 preliminary courses

☒ **Hours/ week:**

Theoretical	5-8	Practical	6-8	Total	11-16

Preliminary courses

Code	Course title	Hours /week		Academic year	Teaching duration
		theoritical	practical		
According to selected courses	Selected (3-5) PhDcourses from the various Faculty Departments programs depending on the thesis title.	5-8	6-8	Preliminary year	36 weeks

D- Courses contents

See courses specification

5- Program Admission Requirements

* According to the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduate Programs, applicants should have a master degree in the specialization subject he will register in one of the Egyptian Universities or an equivalent degree from any approved university or another recognized scientific institute.
* 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)

* Admission to the program is open during March and September annually.

*The faculty council has the right to suspend the student enrolment for a certain period if he has acceptable excuse preventing him from continuing his study or research.

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 written examined time	Degree	
		Theoretical	Practical and oral exam
≥ 3 hours	3 hours	50	50
≤ 3 hours	2 hours	25	25

-The faculty council has the right to deprive the applicant from entering the exams if his attendance courses is less than 75% .
-Failure or depriving from entering one or more course did not requires reexamination of successful passed courses.
-The applicant should submit a seminar within 2years after registration about his research and specialization subject filed that accepted by a committee of professors and assistant professors(3 in number).
-the applicant should submit the thesis that accepted by the judging committee in an open discussion and the following polices should be met:

-pass all preliminary curriculums successfully.
-acceptance of the seminar presented by the applicant.

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

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 Ph.D. 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.

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 after at least three years from registration date according to University regulations.

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

Ph.D. Thesis:

The Ph.D. students should prepare a thesis in biochemistry. The department and the ethical committees must approve the protocol of the research. The thesis includes a review part with a practical part. The thesis is supervised by two 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.

Assessments methods	Matrix alignment of the measured ILOs			
	K&U (a)	I.S (b)	P&P. S (c)	G&T. S (d)
Written exam	a1,a3	b6	C4	-----
Practical exam		b3,b4,b5	C1,c2,c3,c4,c5	d1-d3
Oral exam	a1,a2,a3	b1-b4,b6	C1,C4,c5	d1-d3

B- Matrix alignment of the measured ILOs

8- Evaluation of Program Intended Learning Outcomes

Evaluator	Tool	Sample
1. Post graduate Students	Questionnaire at the end of the program	All the PG students
4. External Evaluators	Review program and courses Attending the final exam	Once before implementation annual report
5. College Quality Assurance committee	Annual program reviewer	

Course coordinator
Prof.Dr.Mohamed Ahmed Kandeil
Dr. Eman Taha Mohamed
Dr. Ghada Mohamed Safwat

Head of the Department

Prof.Dr.Mohamed Ahmed Kandeil

Program course ILOs matrix

Topic	K.U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Metabolism and metabolic disorders	1,2,3	1-6	1-5	1,2,3
Applied biochemistry of tissues and body fluids and its uses in laboratory diagnosis	1,2,3	1-6	1-5	1,2,3
Applied biochemistry of hormones and its role in regulation of metabolism and reproduction	1-3	1-6	1-5	1,2,3
Applied nutritional biochemistry and its correlation with metabolic diseases	1-3	1-6	1-5	1,2,3
Applied clinical biochemistry and use of it in laboratory diagnosis	1-3	1-6	1-5	1,2,3
Applied biochemistry of avian	1-3	1-6	1-5	1,2,3
Applied biochemistry of fish	1-3	1-6	1-5	1,2,3
Applied biochemistry of microorganisms and its use in biotechnology	1-3	1-6	1-5	1,2,3
Radioactive materials and its applied uses in biochemistry	1-3	1-6	1-5	1,2,3

Doctor Program Specification Matrix (Program Courses with ILOS)8

Program ILOS	Courses
Knowledge and understanding	
a1	**Ph 34-43 & thesis**
a2	**Ph 34-43 & thesis**
a3	**Ph 34-43 & thesis**
Intellectual skills	
b1	**Ph 34-43 & thesis**
b2	**Ph 34-43 & thesis**
b3	**Ph 34-43 & thesis**
b4	**Ph 34-43 & thesis**
b5	**Ph 34-43 & thesis**
b6	**Ph 34-43 & thesis**
Professional and practical skill	
c1	**Ph 34-43 & thesis**
c2	**Ph 34-43 & thesis**
c3	**Ph 34-43 & thesis**
c4	**Ph 34-43 & thesis**
c5	**Ph 34-43 & thesis**
General and transferable skills	
d1	**Ph 34-43 & thesis**
d2	**Ph 34-43 & thesis**
d3	**Ph 34-43 & thesis**

Program aims – ILOS Matrix for the Ph.D degree (PhD VSC)

Program ILOs / Program ILOS		Program aims				
		1-Recognize all theories, principles and basics of his/her area of biochemistry learning and other related sciences	2-Provide graduates the opportunity to communicate properly with others and acquire ability to lead a team consisting of different provisional context.	3- To ensure that graduates reserve a comprehensive theoretical and advanced researches in biochemistry and molecular biology	4- Develop new techniques and tools to be applied in the field of biochemistry, clinical biochemistry and molecular biology.	5- Integrate the acquired knowledge about biochemistry with the other related sciences to develop the relations in between
Knowledge and understanding	a1- Describe advanced and applied research techniques used in the field of biochemistry			√	√	
	a2- Apply their knowledge and understanding of biochemistry to the critical analysis and discussion of the scientific literature.	√		√		√
	a3- Understand the principals and importance of high quality practices in the field of biochemistry, clinical biochemistry and molecular biology.				√	
Intellectual skills	b1- Identify and define research problems in the field of biochemistry and molecular biology and apply it in scientific research					√
	b2- Critically evaluate the research data and apply			√		

Program ILOs		Program aims				
Program ILOS		1-Recognize all theories, principles and basics of his/her area of biochemistry learning and other related sciences	2-Provide graduates the opportunity to communicate properly with others and acquire ability to lead a team consisting of different provisional context.	3- To ensure that graduates reserve a comprehensive theoretical and advanced researches in biochemistry and molecular biology	4- Develop new techniques and tools to be applied in the field of biochemistry, clinical biochemistry and molecular biology.	5- Integrate the acquired knowledge about biochemistry with the other related sciences to develop the relations in between
	analytical method to develop new approach to deal with the research questions.					
	b3- Develop methods and advanced biochemical techniques in the field of biochemistry and molecular biology.				√	
	b4-Analyze and evaluate knowledge related to biochemistry and clinical biochemistry and interpret it to solve the related problems.			√		
	b5-Solve problems related to biochemistry and clinical biochemistry using on the available data.	√		√	√	
	b6- Take decisions using the available information in different practices of biochemistry and clinical biochemistry		√			
Practical and professional skills	c1- Apply the experimental design and or research project .		√			
	c2- Select and perform relevant statistical analysis on data obtained for their own research.			√		
	c3- Plan a research project in the field of biochemistry and		√			√

Program ILOs		Program aims				
Program ILOS		1-Recognize all theories, principles and basics of his/her area of biochemistry learning and other related sciences	2-Provide graduates the opportunity to communicate properly with others and acquire ability to lead a team consisting of different provisional context.	3- To ensure that graduates reserve a comprehensive theoretical and advanced researches in biochemistry and molecular biology	4- Develop new techniques and tools to be applied in the field of biochemistry, clinical biochemistry and molecular biology.	5- Integrate the acquired knowledge about biochemistry with the other related sciences to develop the relations in between
	molecular biology with a consideration to technical, ethical and safety issues and associated costs.					
	C4-Write and evaluate reports related to clinical biochemical analysis.	√			√	
	C5-Assess different available tools and methods regarding biochemical analysis.				√	
General and transferable	dl- Demonstrate an ability to learn independently in preparation for a career of lifelong learning .	√				√
	d2- Demonstrate interpersonal skills and team working ability by the successful completion of collaborative learn assignment and the honors researches projects		√			
	d3- present research finding in oral and written from using arrange of appropriate soft-ware (e.g., power point , word , excel and data base).				√	√

Ph.D Program Specification Matrix (Program ILOS with Academic standers ARS)

Academic standers / Program ILOs		Knowledge and understanding					Intellectual skills									Professional and practical skills					General and transferable skills						
		a1	a 2	a 3	a 4	a5	b 1	b 2	b 3	b 4	b 5	b 6	b 7	b 8	b 9	c 1	c 2	c 3	c 4	c 5	d1	d 2	d 3	d 4	d 5	d 6	d 7
Knowledge and understanding	a1	x				x																					
	a2			x																							
	a3	x	x	x	x																						
Intellectual skills	b1							x		x		x															
	b2						x																				
	b3																										
	b4								x		x																
	b5							x			x			x													
	b6												x		x												
Professional and practical skills	c1																		x								
	c2																			x							
	c3																		x								
	c4																x										
	c5															x		x									
General and transferable skills	d1																				x		x				
	d2																					x			x		x
	d3																							x		x	x

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-34
Course title :	Fundamentals of biochemistry
Program title:	Ph D degree In Veterinary Medical Sciences (biochemistry)
Contact hours/ week	4hr./week (2hr. lecture & 2hr. practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1- Ensure that the post graduates understand bases of advanced biochemistry and molecular biology.

2-Provide post graduates professional skills in the field of biochemistry, molecular biology and biotechnology.

3- Provide post graduates the opportunity to develop scientific researches in biochemistry and molecular biology.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1-Understand the biochemical structure and metabolism of carbohydrates, lipid and proteins.
a2-Identify the biochemical role of enzymes in clinical diagnosis.
a3-Describe the biochemical structure of water and fat soluble vitamins.
a4-Identify the biochemistry of hormones and neurotransmitters.
a5- Understand the biochemistry of gene expression.
a6- Identify biochemical structure and function of biological membranes.
a7- Comprehend the biochemical base of cell cycle.
a8- Understand the bases of immune biochemistry.
a9- Understand the biochemical composition of blood, milk, urine and semen.
a10- Describe the principles and steps of different techniques of molecular biology.

b-Intellectual skills

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

b1. Compare between the anabolic and catabolic pathways of various macromolecules.
b2. Suggest accurately possible investigations needed for diagnosis depending on clinical enzymology.
b3. Distinguish between each pairs of the following vitamins and its Co-enzymes, types of immunoglobulins, macrominerals and microminerals and phase I and phase II of metabolism of xenobiotics.
b4. Analyze and evaluate information related to DNA replication and molecular biological techniques.
b5. Solving their research questions based on biochemical and molecular bases.

Course specification of postgraduate

b6. Interpret creative approaches to solving technical problems or issues associate with running and researches project.
b7. . Design studies that add to the knowledge with application of efficient approaches in the of biochemistry and molecular biology.

C- **Professional and practical skills**

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

cl. Use relevant laboratory equipment competently and employ the different biochemical methods of analysis.
c2. Practice on different types of PCR and evaluate its results in diagnosis.
c3. Perform biochemical analysis of lipid in blood and tissues.
c4. Practice on different biochemical methods of analysis of enzymes in blood and tissues.
c5. Write a biochemical report.
c6. Perform biochemical analysis of urine, semen and CSF.
c7. Manage biochemical laboratory results and correlate them to various diseases.
c8. Use suitable statistical programs in analyzing data.

d- General and transferable skills

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

dl. Summarize research findings in oral presentations and workshops.
d2. Communicate effectively with supervisors.
d3. Demonstrate information retrieval and library skills.
d4. Be kind with experimental animals during experimentation.
d5. Encourage graduates for cooperation with colleagues.
d6. Improve computer and internet search skills.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Fundamentals of biochemistry **(Lec. 2h./week, Pract 2h./week)**	Advanced introduction to biochemistry	4	2	2
	Biochemistry and metabolism of carbohydrates	16	8	8
	Complex lipids and steroid metabolism	16	8	8
	Biochemistry of proteins and conversion of amino acids to specialized products	16	8	8
	Biochemistry and metabolism of nucleic acids and nucleoproteins	12	6	6
	Biochemistry of synthesis and degradation of hemoglobin	12	6	6
	Biochemistry of mineral and its role in metabolism	8	4	4
	Metabolism of xenobiotics	2	1	1
	Biochemistry of enzymes and its role in metabolism and metabolic disorders	8	4	4

Course specification of postgraduate

	Biochemistry of fat and soluble Vitamins	8	4	4
	Immunochemistry and its role in diagnosis of metabolic disorders	4	2	2
	Biological membranes biochemistry	4	2	2
	Biochemistry of hormones and basics of cellular signaling	8	4	4
	Applied uses Molecular Biology	10	5	5
	Molecular biological techniques and its use in the field of biochemistr	4	2	2
	Cell cycle biochemistry	4	2	2
	Biochemical composition of blood, urine ,semen and CSF	8	4	4
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures (discussion) using board, data shows.

5.2- Self learning by preparing essays and presentations (computer researches and library)

5.3- Practical (models, samples and Practical classes: in which the demonstrators help the students to perform the laboratory tests by themselves).

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 – a10**	**b1 – b4**	**C1**	**d6**
Practical Exam	**a1,a2, a9,a10**	**b2,b3,b4**	**c1 – c8**	**d4**
Oral Exam	**a1 – a10**	**b1 – b5**	**c1 – c8**	**d1 ,d3,d6**

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	25%
written exams	50%

Course specification of postgraduate

Oral exam	25%
Total	100%

8- List of references

8.1. Notes and books

-Note book of biochemistry part I&II by staff members of biochemistry department.

8.2. Essential books:

1-Robert Murray, Victor Rodwell, David Bender, Kathleen M. Botham, P. Anthony Weil, Peter J. Kennelly. Harper's Illustrated Biochemistry, 28th Edition, 2009 (www.google.com).
2- Richard Harvey, Denise Ferrier. Lippincott's Illustrated Reviews: Biochemistry. 5 th Edition. 2010 (www.medicospace.com).

8.3. Recommended texts

1-David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry. 4 th Edition. 2004.

2- Donald Voet , Judith G. Voet . Biochemistry. 4 th Edition. 2010.

.

8.4. Journals, Websites ……..etc

Journals:

1- Egyptian J. of Biochemistry and molecular biology. Cairo, Egypt.
2- Biochemical journal.
3- Journal of biochemistry and molecular biology.

Websites:

WWW.Science direct
WWW. Pubmed.com
WWW.Scholar google.com
WWW.welly interscience

Course coordinator **Head of Department**

Dr. Eman Taha Mohamed **Prof.Dr.Mohamed Ahmed Kandeil**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Advanced introduction to biochemistry	1	a1	b1	c1, c7, c8	d1 ,d3, d6
2	Biochemistry and metabolism of carbohydrates	2- 5	a1-a4,a6	b1	c1, c7, c8	d1 ,d3, d6
3	Complex lipids and steroid metabolism	6 - 9	a1-a4,a6	b1	c1,c3, c7, c8	d1 ,d3, d6
4	Biochemistry of proteins and conversion of amino acids to specialized products	10 - 13	a1-a4,a6	b1	c1, c7, c8	,d1,d3,d6
5	Biochemistry and metabolism of nucleic acids and nucleoproteins	14 - 16	a1-a4, a6	b1	c1, c7, c8	d1 ,d3, d6
6	Biochemistry of synthesis and degradation of hemoglobin	17 - 19	a1-a4, a6	b1	c1, c7, c8	d1 ,d3, d6
7	Biochemistry of mineral and its role in metabolism	20 - 21	a9	b3	c1,c5, c7, c8	d1, d3, d6
8	Metabolism of xenobiotics	22	a6	b3	C1, c7, c8	d1 ,d3, d6
9	Biochemistry of enzymes and its role in metabolism and metabolic disorders	22 - 24	a2,a9	b2	C1,c4, c7, c8	d1 ,d3, d6
10	Biochemistry of fat and soluble Vitamins	24 - 26	a3	b3	c1,c7, c8	d1 –d3, d6
11	Immunochemistry and its role in diagnosis of metabolic disorders	27	a8	b3	C1,c7, c8	d1 ,d3, d6
12	Biological membranes biochemistry	28	a6	b7	C1,c7,c8	d1 ,d3, d6
13	Biochemistry of hormones and basics of cellular signaling	28 -29	a4	b2	c7, c8	d1, d3, d6
14	Applied uses Molecular Biology	30 - 32	a5,a10	b4	C2, c7, c8	d1, d3, d6
15	Molecular biological	33	a5,a10	b4	c2, c7, c8	d1 ,d3, d6

Course specification of postgraduate

	techniques and its use in the field of biochemistr					
16	Cell cycle biochemistry	34	**a7**	**b4**	**C1,c7, c8**	**d1,d3, d6**
17	Biochemical composition of blood, urine ,semen and CSF	35 - 36	**a9**	**b2**	**C1, c7, c8**	**d1,d3, d6**

Course specification

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	ph-35
Course title :	Metabolism
Program title:	Ph D Degree of Veterinary Medical Sciences (Biochemistry).
Contact hours/ week	3 hours (1hr lecture & 2hr practical)/week
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

Ensure that students reserve comprehensive biochemical bases in metabolism of various food stuff and its related metabolic disorders.

.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1-Understand biochemical and molecular pathways of carbohydrates, lipids, protein and mineral metabolism.
a2-Recognize the biochemical structure of different metabolites.
a3-Understand the hormonal and genetic control of metabolism.
a4-Comprehend the biochemical reactions which release energy (ATP).
a5-Describe the different metabolic abnormalities.
a6-Realize the different types of inhibitors which suppress the metabolic pathways.
a7- Understand the functioning of relation between different metabolic pathways in order to apply knowledge about metabolic disorders

b-Intellectual skills

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

b1-Suggest accurately the possible biochemical tests needed for diagnosis of the enzymes that control the different metabolic pathways
b2-Compare between carbohydrates, lipid and protein in ATP production.
b3-Analyse and evaluate information about measuring of basal metabolic rate.

C- Professional and practical skills

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

c1-Practice on advanced biochemical laboratory techniques for diagnosis of metabolic disturbances.
c2-Use the suitable experimental animals as models for studying the metabolic disorders.
c3-Use of suitable statistical programs.

d- General and transferable skills

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

dl-Summarize research review in oral form in seminars**.**
d2-Communicate effectively with supervisors.

Course specification of postgraduate

d3-Demonstrate information retrieval and library skills.
d4-Experimental ethics with animals.
d5-Cooperation with other colleagues**.**
d6-Use different sources to get information and knowledge.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
metabolism (1hr lecture & 2hr practical)/week	Metabolism of monosaccharides, disaccharides and polysaccharides	30	10	20
	Main biochemical pathways of amino acids metabolism and conversion of amino acids to specialized products.	21	7	14
	Metabolism of fatty acids, lipoproteins, Cholesterol and prostaglandins.	21	7	14
	Role of minerals and trace elements in metabolism.	21	7	14
	Biochemical relationship between carbohydrate, lipid and protein metabolism	15	5	10
	Total	108	36	72

5-Teaching and learning methods

5.1- Lectures (discussion) using board, data shows
5.2- Active learning by preparing essays and presentations (computer researches and faculty library)
5.3- Practical courses

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,a2, a3, a4,a5,a6,a7	b1,b2		d3
Practical Exam	a2,a5	b3	C1,c2	d4
Oral Exam	a1,a3, a4,a5,a6a7	b1,b2,b3		d1,d3,d6

Course specification of postgraduate

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	25%
written exams	50%
Oral Exam	25%
total	100%

8- List of references

8.1. Notes and books

Course notes: Student handbook of Biochemistry part II prepared by the department staff members

8.2. Essential books:

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

8.3. Recommended texts

-Lippincott's Reviews of Biochemistry, 4th edition by Champe PC, Harvey RA, Ferrier DR, Lippincott William & Wilkins London, 2008.

8.4. Journals, Websites ……..etc

Journals:

-Diabetes, obesity & metabolism.
-Nutrition, metabolism and cardiovascular diseases.
-Journal of bone and mineral metabolism.
-Biochemical medicine and metabolic biology.

Websites:

-http:/www.elsevier.com/located/clinbiochem.
-http/www.ncb.nlm.nih.gov/pmc/journals/548.
-http//link.springer.com/journal/12291

Course Coordinators

Prof.Dr.Mohamed Ahmed Kandeil,
Dr. Ghada M. Safwat,
Dr. Eman Taha Mohamed

Head of Department

Prof.Dr.Mohamed Ahmed Kandeil

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Metabolism of monosaccharides, disaccharides and polysaccharides	1-10	**a1-a7**	**b1 –b2**	**C1, c2**	**d1 ,d3,d6**
2	Main biochemical pathways of amino acids metabolism and conversion of amino acids to specialized products.	11- 17	**a1-a7**	**b1 –b2**	**C1, c2**	**d1 ,d3,d6**
3	Metabolism of fatty acids, lipoproteins, Cholesterol and prostaglandins.	18-24	**a1-a7**	**b1 –b2**	**C1, c2**	**d1 ,d3,d6**
4	Role of minerals and trace elements in metabolism.	25-31	**a1-a7**	**b1 –b2**	**c1, c2**	**d1 ,d3,d6**
5	Biochemical relationship between carbohydrate, lipid and protein metabolism	32 - 36	**a1-a7**	**b1 –b2**	**c1, c2**	**d1 ,d3,d6**

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	ph-36
Course title :	Biochemistry of tissues and body fluids
Program title:	Ph D degree In Veterinary Medical Sciences (biochemistry)
Contact hours/ week	4 h/week (2 h lecture& 2 h Practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

Practice efficiently all available biochemical and molecular biology techniques either for laboratory diagnosis or research and find new sources.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1-Understand the biochemical composition of blood, organs and tissues.

a2-Understand the broad-based core biochemistry and molecular biology of different body tissues and organs and related disciplines

a3-Identify alterations in related metabolic disorders at biochemical and molecular level.

a4- Illustrate the advanced biochemical analytical methods for evaluation of various disorders of tissue and body fluids.

b-Intellectual skills

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

b1- Deal with ethical and professional issues of lab animals, handling, excision and homogenization of different tissues .

b2- Interpret the advanced diagnostic biochemical tests related to function of body organs.

b3- Utilize the body fluids and tissue homogenates for biochemical markers and analysis related to different diseases in corresponding organ.

b4. Analyze and evaluate their own research data then, use statistical methods to express it.

C- Professional and practical skills

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

c1- Practice on collection of urine and blood samples from different laboratory animals.

c2- Use suitable and advanced biochemical analytical methods.

c3-Write a scientific report about the clinical biochemical tests results.

C4. Recommend laboratory reagents and instruments that could be used in biochemistry labs.

d- General and transferable skills

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

Course specification of postgraduate

dl- Work effectively as a member or leader of a team.
d2- Use statistical methods as well as information technology tools.
d3- Be kind with animals during experimentation and scarification.
d4-To summarize research findings in oral form in seminars and workshops.
d5-To communicate effectively with supervisors.
d6- Use available resources to learn independently and continuously

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Biochemistry of tissues and body fluids (Lec. 2h./week, Pract 2h./week)	Applied biochemical structure and function of cell membrane.	24	12	12
	Applied biochemical structure and function of muscles.	20	10	10
	Applied biochemical structure and function of connective tissue, bone and adipose tissue	28	14	14
	Biochemistry of the kidneys function and its role in urine formation and regulation of blood pressure.	24 20	12 10	12 10
	Applied biochemical structure of Plasma lipoproteins and its relation with coronary heart diseases.	28	14	14
	Applied biochemical disorders results from kidney diseases and failure			
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures (brain storm, discussion) using board, data shows
5.2- Self learning by preparing essays and presentations (computer researches and faculty library)
5.3- Practical and small group sessions.

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 – a4**	**b2**		d6,
Practical Exam	**a3, a**4	b1, b3, b4	**c1, c2 ,c3, c4**	d1, d4
Oral Exam	**a1 – a4**	**b2**		d1, d5, d6

Course specification of postgraduate

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	25%
written exams	50%
Oral Exam	25%
total	100%

8- List of references

8.1. Notes and books

Student handbook of biochemistry part I &II prepared by the department staff members.

8.2. Essential books:

-Harper's Illustrated Biochemistry 2003. 26 ed. **Robert K. Murray,** Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell. Lange Medical Books/McGraw-Hill.

-BIOCHEMISTRY OF LIPIDS, LIPOPROTEINS AND MEMBRANES

-New Comprehensive Biochemistry, 1996, V. 31 DENNIS E. VANCE and JEAN E. VANCE, Elsevier Science B.V. Sara - Essential Physiological Biochemistry An organ-based approach. Stephen Reed, 2009 John Wiley & Sons, Ltd

8.3. Recommended texts

-Jiro Jerry Kaneko, John W. Harvey, Michael L. Bruss. Clinical - Essential Physiological Biochemistry An organ-based approach. Stephen Reed, 2009 John Wiley & Sons, Ltd

-Biochemistry of Domestic Animals. 6th Edition. 2008.

8.4. Journals, Websites ……..etc

Journals:

-BMC Biochemistry
-Biochemical Medicine and Metabolic Biology
-Biochemical Systematics and Ecology

Websites:

http:/www.elsevier.com/located/clinbiochem.
-http/www.ncb.nlm.nih.gov/pmc/journals/548.
-http//link.springer.com/journal/12291

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Coordinators	Head of Department
Prof.Dr.Mohamed Ahmed Kandeil	**Prof.Dr.Mohamed Ahmed Kandeil**

Course specification

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Applied biochemical structure and function of cell membrane.	1-6	**a1-a4**	**b1 –b3**		**d4,d6,**
2	Applied biochemical structure and function of muscles.	7- 13	**a1-a4**	**b1 –b3**	**C1**	**d4,d6,d3**
3	Applied biochemical structure and function of connective tissue, bone and adipose tissue	14 - 18	**a1-a4**	**b1 ,b2, b3**	**c1, c2**	**d3, d4, d6**
4	Biochemistry of the kidneys function and its role in urine formation and regulation of blood pressure.	19 - 23	**a1-a4**	**b1, b2 ,b3**	**c1, c2**	**d3,d4,d6**
5	Applied biochemical structure of Plasma lipoproteins and its relation with coronary heart diseases.	24 - 30	**a1-a4**	**b1 –b3**	**c1, c2**	**d3,d4,d6**
6	Applied biochemical disorders results from kidney diseases and failure	31 - 36	**a1-a4**	**b1 –b3**	**c1, c2**	**d1,d2,d4, d6**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	ph-37
Course title :	Biochemistry of hormones and reproduction
Program title:	Ph D degree in Vet. Med. Science (Biochemistry)
Contact hours/ week	2 hours/week (1hr lecture &1hr practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

- Provide graduates with skills to make biochemical diagnosis of different pathological conditions and reproduction problems results from hormonal imbalance.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1- Understand the biochemical structures and biochemical mode of action of hormones.
a2-Recognize the biochemical synthesis and release of various hormones
a3-Describe the role of hormones in relation to homeostasis and metabolism.

b-Intellectual skills

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

b1- Deal with research papers in biochemistry of hormones and its relation with reproduction.
b2- Differentiate between various endocrine disorders on the basis of clinical biochemistry.
b3- Interpret correctly the biochemical analytical data of hormones.

C- Professional and practical skills

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

C1. Perform the advanced biochemical and molecular analysis for endocrinal gland functions.
C2. Practice on biochemical analysis of semen.
C3. Write efficiently the laboratory professional reports about hormonal analysis.

d- General and transferable skills

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

d1. Utilize different available resources for efficient obtaining of knowledge and Information.
d2. Insure effective communication.

Course specification of postgraduate

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Biochemistry of hormones and reproduction (Lec. 2 h./week, Pract. 2 h./week)	1.Biochemical structure of hormones.	20	10	10
	2. Biochemical classification of hormones.	8	4	4
	3. Mode of action of hormones.	8	4	4
	4. Biochemical role of different hormones in regulation of metabolism and reproduction.	20	10	10
	5. Applied Biochemical diagnosis of pituitary dysfunction.	16	8	8
	6. Applied Biochemical diagnosis of thyroid dysfunction.	8	4	4
	7. Applied biochemical diagnosis of pancreas dysfunction.	16	8	8
	8. Applied biochemical diagnosis of Adrenal cortex dysfunction.	8	4	4
	9.Applied biochemical diagnosis of Adrenal medulla dysfunction.	16	8	8
	10. Applied biochemical diagnosis of gonads dysfunction.	16	8	8
	11. Applied biochemical analysis of semen.	8	4	4
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures (brain storm, discussion) using board, data shows

5.2- Self learning by preparing essays and presentations (computer researches and faculty library)

5.3- Practical (laboratory analysis of blood and semen samples).

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,a2, a3	b1-b3		d1
Practical Exam	a1,a2,a3	b2- b3	c1,c2, c3	
Oral Exam	a1,a2,a3	b1-b3		d2

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week

Course specification of postgraduate

Written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	15%
Written exams	25%
Oral Exam	10%
total	50%

8- List of references

8.1. Notes and books

-Note book of biochemistry part II by staff members of biochemistry department.

8.2. Essential books:

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

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

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

8.3. Recommended texts

-Lippincott's Reviews of Biochemistry, 4th edition by Champe PC, Harvey RA, Ferrier DR, Lippincott William & Wilkins London, 2008.

8.4. Journals, Websites ……..etc

Journals:

-Journal of Biochemistry
-Hormone and metabolic research.
-Hormones.

Websites:

-www.sciencedirect.com
-www.pubmed.com

Course Coordinators
Prof.Dr.Mohamed Ahmed Kandeil

Head of Department
Prof.Dr.Mohamed Ahmed Kandeil

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	1.Biochemical structure of hormones.	1-2	**a1**	**b1**	**C1-c3**	**d1**
2	2. Biochemical classification of hormones.	3- 7	**a1**	**b1**	**C1-c3**	**d1**
3	3. Mode of action of hormones.	8 - 11	**a3**	**b1**	**C1- c3**	**d1**
4	4. Biochemical role of different hormones in regulation of metabolism and reproduction.	12 - 14	**a2**	**b1**	**C1- c3**	**d1**
5	5. Applied Biochemical diagnosis of pituitary dysfunction.	15 - 18	**a2**	**b2 –b3**	**C1- c3**	**d1**
6	6. Applied Biochemical diagnosis of thyroid dysfunction.	19 - 20	**a2**	**b2 –b3**	**C1- c3**	**d1**
7	7. Applied biochemical diagnosis of pancreas dysfunction.	21 - 23	**a2**	**b2 –b3**	**C1- c3**	**d1**
8	8. Applied biochemical diagnosis of Adrenal cortex dysfunction.	24 - 26	**a2**	**b2 –b3**	**C1- c3**	**d1**
9	9.Applied biochemical diagnosis of Adrenal medulla dysfunction.	27 - 30	**a2**	**b2 –b3**	**C1 –c3**	**d1**
10	10. Applied biochemical diagnosis of gonads dysfunction.	31 - 33	**a2**	**b2 –b3**	**C1 –c3**	**d1**
11	11. Applied biochemical analysis of semen.	34- 36	**a2**	**b2 –b3**	**C2, c3**	**d1**

Course specification of postgraduate

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	ph-38
Course title :	Nutritional biochemistry
Program title:	**Ph D degree In Veterinary Medical Sciences (biochemistry)**
Contact hours/ week	4hr./week(2hr. lecture &2 hr.practicle)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

Provide graduates the opportunity to develop research skills in the field of nutritional biochemistry.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1-Understand the biochemical role of carbohydrates, lipid and protein in energy production and nitrogen balance in the body.

a2-Describe the biochemical structure of different carbohydrates, lipid, protein and vitamins in food.

3-Recognize the biochemical mechanisms associated with digestion and assimilation of different nutrients.

a4-Describe the different food sources of nutrients used in veterinary field.

a5-Understand the biochemical bases of metabolic diseases resulting from imbalance of carbohydrates, lipid, protein, vitamins and mineral consumption.

a6-Describe the biochemical relation between nutrition and some diseases as fatty liver.

b-Intellectual skills

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

b1- Correlate between nutrient supplementation and food therapy for promoting health and growth through optimal biochemical pathway functions.

b2-Differentiate between carbohydrates, lipid and protein in energy production (ATP).

b3-Interpret the expected the pathologies associated with nutrient deficiencies, nutrient toxicities, and with common metabolic disorders.

C- Professional and practical skills

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

c1- Perform biochemical analysis for measuring of different macronutrient in body fluids

c2- Obtain data bout the biochemical relation between some metabolic and deficiency diseases and nutrients.

c3- Use the suitable statistical techniques for analyzing data.

d- General and transferable skills

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

dl. Create a research plan and found reasonable solution for the research problems.

Course specification of postgraduate

d2. Communicate effectively with supervisors.
d3. Demonstrate information retrieval and library skills.
d4. Summarize research review in oral form in seminars
d5. Encourage graduates for cooperation with colleagues.
d6. Improve computer and internet search skills.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Nutritional biochemistry (Lec. 2h./week, Pract 2h./week)	Biochemical basis for nutrient requirements	8	4	4
	Absorption and transport of nutrients (carbohydrates, lipids ,proteins, vitamins and minerals)	20	10	10
	Food sources of nutrients and factors affecting nutrient bioavailability	16	8	8
	Biochemical structure and metabolic functions of macro-and micronutrient	30	15	15
	Biochemical basis for nutrient requirements	16	8	8
	Role of nutrition in induction of obesity	18	9	9
	Role of nutrition in induction of fatty liver disease	18	9	9
	Role of nutrition in induction of metabolic syndrome.	18	9	9
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures (brain storm, discussion) using board, data shows
5.2- Self learning by preparing essays and presentations (computer researches and faculty library)
5.3- Practical (models, samples, classes: in which the demonstrators help the students to perform the laboratory tests by themselves).

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 – a6	b1 – b3	C2	d1 ,d3,d4
Practical Exam	a2	b3	c1 , c3	d5

Course specification of postgraduate

Oral Exam	**a1 – a6**	**b1 – b3**	**c1 , c2**	**d1 ,d3,d4**

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	25%
written exams	50%
Oral Exam	25%
total	100%

8- List of references

8.1. Notes and books

Note book of biochemistry part I& II by staff members of biochemistry department**.**

8.2. Essential books:

1- J.Wallach. Interpretation of diagnostic tests. Lippincott Williams & Wikins,2000.
2- F.Fischbach. A Manual of Laboratory & Diagnostic Tests. Lippincott, 2000. 5- Eugene C. Toy, Jr., William E Seifert , Henry W. Strobel, Konrad P. Harms. Case Files: Biochemistry. 1 st Edition. 2005.

8.3. Recommended texts

1- Michael A. Lieberman , Allan Marks. Marks' Basic Medical Biochemistry: A Clinical Approach. 3 rd Edition. 2008.
2- Thomas M. Devlin. Textbook of Biochemistry with Clinical Correlations. 6 th Edition. 2005.

8.4. Journals, Websites ……..etc

Journals:

- Egyptian J. of Biochemistry and molecular biology. Cairo, Egypt.
- Journal of clinical biochemistry and nutrition.
-Journal of nutritional biochemistry.

Websites:

-http:/www.elsevier.com/located/clinbiochem.
-http/www.ncb.nlm.nih.gov/pmc/journals/548.
-http//link.springer.com/journal/12291.

Course Coordinators **Head of Department**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Dr. Ghada M. Safwat **Prof.Dr.Mohamed Ahmed Kandeil**

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Biochemical basis for nutrient requirements	1-2	a1,a2	b2		d1 ,d3,d4
2	Absorption and transport of nutrients (carbohydrates, lipids ,proteins, vitamins and minerals)	3- 6	a1	b3	C1	d1 ,d3,d4
3	Food sources of nutrients and factors affecting nutrient bioavailability	7 - 10	a3	b3		d1 ,d3,d4
4	Biochemical structure and metabolic functions of macro-and micronutrient	11 - 14	a2	b3	C1	d1 ,d3,d4
5	Biochemical basis for nutrient requirements	15 - 18	a1	b1	C 3	d1 ,d3,d4
6	Role of nutrition in induction of obesity	19	a6	b3	C1	d1 ,d3,d4
7	Role of nutrition in induction of fatty liver disease	20	a6	b3	C1	d1 ,d3,d4
	Role of nutrition in induction of metabolic syndrome.	21	a6	b3	C1	d1 ,d3,d4

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-39
Course title :	Clinical Biochemistry
Program title:	Ph. D. degree in Vet. Med. Science (biochemistry)
Contact hours/ week	4hours/week (2hr lecture &2hr practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

Enable graduate to apply analytical method and criticism of knowledge in the field of clinical biochemistry and integrate them with related medical knowledge.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1- Understand basics of clinical biochemistry and apply it in scientific research.

a2- Illustrate the clinical biochemical basis of metabolism.

a3- Identify alterations in related metabolic disorders at biochemical base.

a4- Understand scientific background of laboratory equipment and methods used in blood and urine biochemical analysis.

b-Intellectual skills

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

b1- Analyze and evaluate information related to diagnostic biochemical tests of different organs.

b2- Recommend laboratory reagents and instruments that could be used in clinical biochemistry labs.

C- Professional and practical skills

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

C1. Write efficiently the laboratory reports and scientific paper of biochemical analysis of blood and urine.

C2. Perform relevant statistical analysis of obtained data.

d- General and transferable skills

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

d1. Utilize the information technology in the development of laboratory professional practice.

d2. Insure effective communication.

d3. Use available resources to learn independently and continuously.

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Clinical biochemistry 4 hours /week (Lec. 2h./week, pract. 2h./week)	1. Metabolic disorders of carbohydrate metabolism			
	Favisim	4	2	2
	Glycogen storage disease	4	2	2
	Diabetes mellitus	8	4	4
	2. Metabolic disorders of lipid metabolism			
	Hyperlipidemia	4	2	2
	Hypercholesterolemia	4	2	2
	Ketosis	4	2	2
	Fatty liver	16	8	8
	3. Metabolic disorders of protein metabolism			
	Hyperammonemia	8	4	4
	Phenylketonuria	4	2	2
	Maple syrup disease	4	2	2
	Albinism	4	2	2
	Alkaptonuria	4	2	2
	Porphyrias	8	4	4
	Disorder of bilirubin metabolism(Jaundice)	8	4	4
	Disorder of purine metabolism (Gout)	4	2	2
	4. Liver function tests	8	4	4
	5. Kidney function tests	8	4	4
	6. Cardiac function tests	8	4	4
	7. Biochemistry of blood	16	8	8
	8. Urine analysis	16	8	8
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures using board, data shows.

5.2- Self learning by preparing essays and presentations (computer researches and faculty library)

5.3- Practical and small group sessions (laboratory analysis of blood and urine samples).

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,a2,a3,a4	b1		d3

Course specification of postgraduate

Practical Exam	a4	b2	c1,c2	
Oral Exam	a1,a2,a3,a4	b1		d3

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	25%
written exams	50%
Oral Exam	25%
total	100%

8- List of references

8.1. Notes and books

-Note book of biochemistry part II by staff members of biochemistry department.

8.2. Essential books:

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

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

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

8.3. Recommended texts

-Lippincott's Reviews of Biochemistry, 4th edition by Champe PC, Harvey RA, Ferrier DR, Lippincott William & Wilkins London, 2008.

8.4. Journals, Websites ……..etc

Journals:

-Clinical biochemistry journal.
-Journal of clinical biochemistry and nutrition.
-Indian journal of clinical biochemistry.

Websites:

-http:/www.elsevier.com/located/clinbiochem.
-http/www.ncb.nlm.nih.gov/pmc/journals/548.
-http//link.springer.com/journal/12291.

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Coordinators
Dr. Ghada M. Safwat

Head of Department
Prof.Dr.Mohamed Ahmed Kandeil

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Favisim and Glycogen storage disease	**1-2**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
2	Diabetes mellitus	**3- 4**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
3	Hyperlipidemia	**5**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
4	Hypercholesterolemia	**6**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
5	Ketosis	**7**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
6	Fatty liver	**8-11**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
7	Hyperammonemia	**12- 13**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
8	Phenylketonuria	**14**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
9	Maple syrup disease	**15**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
10	Albinism	**16**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
11	Alkaptonuria	**17**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
12	Porphyrias	**18-19**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d6**
13	Disorder of bilirubin metabolism(Jaundice)	**20-21**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
14	Disorder of purine metabolism (Gout)	**22**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
15	Liver function tests	**23-24**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
16	Kidney function testes	**25-26**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
16	Cardiac function test	**27-28**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
17	Biochemistry of blood	**29-32**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**
18	Urine analysis	**33-36**	**a1-a4**	**b1 –b2**	**c1-c2**	**d1 , d3**

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-40
Course title :	Avian biochemistry
Program title:	Ph D degree In Veterinary Medical Sciences (biochemistry)
Contact hours/ week	4 hours (2hr lecture & 2hr practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

Provide graduates the opportunity to develop research skills in biochemistry of birds and rabbits and to enable them to pursue a career in this field.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1-Understand the biochemistry of birds and rabbit.

a2- Recognize the biochemistry pathways of metabolism in birds and rabbits

a3- Comprehend the diseases results from minerals and vitamins deficiency in birds and rabbits.

a4- Illustrate the biochemical effects of oxidative stress and free radicals on biochemical processes in birds and rabbits.

a5- Describe the various metabolic disorders of avian metabolism as gout in poultry.

b-Intellectual skills

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

b1- Compare between metabolism in mammals and birds.

b2- Correlate the biochemical importance of the metabolism and growth rates in birds and rabbits.

b3. Utilize the advanced biochemical analytic methods in the differential diagnosis of birds and rabbit diseases.

C- Professional and practical skills

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

c1- Practice on collection of blood and tissue samples from birds.

c2-Perform biochemical analysis to evaluate metabolic disorders in birds and rabbits.

c3- Manage the biochemical role of natural antioxidants in improving growth and reproduction of birds and rabbits.

C4. Write a report about laboratory results and correlate them to disorders.

C5. Use statistical techniques in analyzing data.

Course specification of postgraduate

d- General and transferable skills

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

d1-Summarize research findings in oral form in seminars and workshops.
d2-Communicate effectively with supervisors.
d3-Demonstrate information hold and library skills.
d4-Encourage students for cooperation with colleagues**.**

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Avian biochemistry (Lec. 2h./week, Pract 2h./week)	Applied features of avian biochemistry	24	12	12
	Biochemistry of carbohydrate, lipid and protein metabolism	28	14	14
	Biochemical role of certain minerals and natural antioxidants in birds and rabbit growth and reproduction	20	10	10
	Applied metabolic adaptation in avian species	20	10	10
	Biochemistry of avian hormones and its role in the control of metabolism and reproduction	28	14	14
	The avian nucleic acids and nucleoproteins and its applied expression.	24	12	12
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures (discussion) using board, data shows

5.2- Self learning by preparing essays and presentations (computer researches and faculty library)

5.3- Practical classes (in which the demonstrators help the students to perform the laboratory tests by themselves).

7-Student assessment

7.1. Assessments methods:

Methods of assessments	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
written Exam	**a1 – a5**	**b1 , b2**	**C3, c4**	**d1,d3**
Practical Exam		**b3**	**c1 , c2, c5**	
Oral Exam	**a1 – a5**	**b1 , b2**	**C3, c4**	**d1,d3**

Course specification of postgraduate

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	25%
written exams	50%
Oral Exam	25%
total	100%

8- List of references

8.1. Notes and books

Note book of biochemistry part II by staff members of biochemistry department

8.2. Essential books:

-Harper's Illustrated Biochemistry 2003. 26 ed. **Robert K. Murray, Daryl K. Granner, Peter A. Mayes**, **Victor W. Rodwell. Lange Medical Books/McGraw-Hill.**

- Poultry production. Richard,E. Austic and Malden C. Nesheim. 1990. Lea and Febiger, 13th edition, Philadelphia and London.

-Jiro Jerry Kaneko, John W. Harvey, Michael L. Bruss. Clinical Biochemistry of Domestic Animals. 6th Edition. 2008

8.3. Recommended texts

-Avian biochemistry and molecular biology 1996. Stevens, Lewis. The Edinburgh Building, Cambridge CB2 2RU, UK

8.4. Journals, Websites ……..etc

Journals:

-The journal of poultry science.
-Journal of avian biology
-International *Journal* of *Poultry* Sciences

Websites:

-http:/www.elsevier.com/located/clinbiochem.
-http/www.ncb.nlm.nih.gov/pmc/journals/548.
-http//link.springer.com/journal/12291

Course Coordinators **Head of Department**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Dr. Khalid Shaban hashem **Prof.Dr.Mohamed Ahmed Kandeil**

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Applied features of avian biochemistry	1-6	**a1**		**C4**	**d1 ,d3**
2	Biochemistry of carbohydrate, lipid and protein metabolism	7- 13	**a1-a5**	**b1, b2**	**C4**	**d1 ,d3**
3	Biochemical role of certain minerals and natural antioxidants in birds and rabbit growth and reproduction	14 - 18	**a1, a3, a4**	**b3**	**C4**	**d1 ,d3**
4	Applied metabolic adaptation in avian species	19-23	**a1,a3,a4,a5**	**b1 ,b2**	**C4**	**d1 ,d3**
5	Biochemistry of avian hormones and its role in the control of metabolism and reproduction	24-30	**a1, a4, a5**	**b1 ,b2**	C4	**d1 ,d3**
6	The avian nucleic acids and nucleoproteins and its applied expression.	31 - 36	**a1, a4**		**C4**	**d1 ,d3**

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	ph-41
Course title :	Fish biochemistry
Program title:	Ph D In Veterinary Medical Sciences (biochemistry)
Contact hours/ week	4 hours (2hr lecture & 2hr practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

Provide graduates with different skills to enable them to pursue a career in the field of researches in biochemistry of fish.

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.Describe the biochemical structures of body fluids and tissues of fish.
a.2. Recognize the different metabolic pathways in fish.
a.3. Comprehend different metabolic disorders in fish.
a.4. Describe the role of different stressors and free radicals on biochemical balance of fish.

b-Intellectual skills

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

b1-Differentiate between metabolism in mammals and fish
b2-Differentiate between biochemical metabolic disorders in fish
b3- Interpret the biochemical effects of different natural antioxidants and growth promoters on growth rate and healthiness of fish.

C- Professional and practical skills

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

c1. Manage the normal and abnormal metabolites of the nutrient in fish.
c.2. Practice on biochemical analysis of blood and tissue of fish
c.3. Perform biochemical diagnosis of fish metabolic disorders by using of advanced molecular techniques.
c4-Use statistical techniques in analyzing data

d- General and transferable skills

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

d1 -Communicate effectively with supervisors.
d2- Collect scientific data from library and scientific websites.
d3-Encourage students for cooperation with colleagues**.**

4-Topics and contents

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course	Topic	No. of hours	Lectures	Practical
Fish biochemistry (Lec. 2h./week, Pract 2h./week)	Applied of fish biochemistry	24	12	12
	Metabolism of Carbohydrate, lipid and proteins in Fish and the biochemical correlation between its metabolism	28	14	14
	Biochemical effect of stress factors on antioxidants in fish	20	10	10
	Applied metabolic adaptation in fish	20	10	10
	Biochemistry of fish hormones and its control of metabolism	28	14	14
	Biochemistry of nucleic acids, nucleoproteins in fish and its biochemical expression.	24	12	12
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures (discussion) using board, data shows

5.2- Self learning by preparing essays and presentations (computer researches and faculty library)

5.3- Practical (models, samples and Practical classes in which the demonstrators help the students to perform the laboratory tests by themselves.

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 – a4	b1 – b3	C1	d2
Practical Exam	a1	b2,b3	C2, c3, c4	d3
Oral Exam	a1 – a4	b1 – b3	c1 – c5	d2

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Course specification of postgraduate

Assessment	Weight of assessment
Practical exams	25%
written exams	50%
Oral Exam	25%
total	100%

8- List of references

8.1. Notes and books

Note book of biochemistry part II by staff members of biochemistry department

8.2. Essential books:

-Harper's Illustrated Biochemistry 2003. 26 ed. **Robert K. Murray, Daryl K. Granner, Peter A. Mayes**, **Victor W. Rodwell. Lange Medical Books/McGraw-Hill**.

-Jiro Jerry Kaneko, John W. Harvey, Michael L. Bruss. Clinical Biochemistry of Domestic Animals. 6th Edition. 2008

8.3. Recommended texts

-Biochemistry and molecular biology of fishes (www.sciencedirect.com).

8.4. Journals, Websites ……..etc

Journals:

-Journal of fish biochemistry

-Journal of fish biochemistry and physiology

Websites:

-http:/www.elsevier.com/located/clinbiochem.

-http/www.ncb.nlm.nih.gov/pmc/journals/548.

-http//link.springer.com/journal/12291

Course Coordinators — **Dr. Khalid Shaban hashem**

Head of Department — **Prof.Dr.Mohamed Ahmed Kandeil**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Applied of fish biochemistry	1-6	**a1**		**c2**	**d2**
2	Metabolism of Carbohydrate, lipid and proteins in Fish and the biochemical correlation between its metabolism	7-13	**a4**	**b3**	**c2**	**d2**
3	Biochemical effect of stress factors on antioxidants in fish	14- 18	**a2,a3**	**b1**	**c1, c2**	**d2**
4	Applied metabolic adaptation in fish	19-23	**a2**	**b1**	**c1, c2**	**d2**
5	Biochemistry of fish hormones and its control of metabolism	24-30	**a2,a3**	**b1**	**c1,c2**	**d2**
6	Biochemistry of nucleic acids, nucleoproteins in fish and its biochemical expression.	31-36	**a1**		**c3**	**d2**

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-42
Course title :	Microbiological biochemistry
Program title:	Master degree In Veterinary Medical Sciences (biochemistry)
Contact hours/ week	4hr/week(2 hr. lecture & 2 hr. practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

Provide graduates the opportunity to develop biochemical research skills in the field of molecular biology and biotechnology.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1-Understand features of microbial biochemistry and metabolism.

a2-Describe the difference between metabolism of prokaryotic and eukaryotic

a3-Comprehend the effect of microorganisms on several metabolic disorders as obesity and metabolic syndrome**.**

a4-Recognize the different techniques of molecular biology and biotechnology.

b-Intellectual skills

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

b1-Compare between metabolism in microorganisms and mammals.

b2-Correlate the biochemical importance of the metabolism and the growth of microbes.

b3. Utilize creative approaches to solving technical problems or issues associate with researches project.

C- Professional and practical skills

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

C1-Obtain information about biotechnology and its role in treatment of diseases.

C2-Use experimental animals for biochemical evaluation of the effect of microorganisms on metabolic disorders as obesity.

C3. Interpret laboratory results and correlate them to disorders.

C5. Use statistical techniques in analyzing data.

d- General and transferable skills

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

d1-Summarize research findings in oral form in seminars and workshops.

d2-Communicate effectively with supervisors.

Course specification of postgraduate

d3-Demonstrate information hold and library skills.
d4-Encourage students for cooperation with colleagues**.**
d5. Improve computer and internet search skills.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Microbiological biochemistry (Lec. h./week, Pract h./week)	Membrane composition of microorganisms and its growth	24	12	12
	The Biological Fixation of Nitrogen	20	10	10
	Evolution of different biosynthetic pathways in microorganisms	28	14	14
	Biosynthesis of Amino Acids Derived from Phosphoglyceric Acid and Pyruvic Acid	24	12	12
	ATP-Generating Processes: Respiration and Fermentation	20	10	10
	The Biosynthesis of Nucleotides	28	14	14
	Total	144	72	72

5-Teaching and learning methods

5.1- Lectures (discussion) using board, data shows
5.2- Self learning by preparing essays and presentations (computer researches and faculty library)
5.3- Practical classes (in which the demonstrators help the students to perform the laboratory tests by themselves).

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 – a4**	**b1 , b2**	**C1**	**d1,d3**
Practical Exam	**a4**	**b3**	**C2, c3, c5**	
Oral Exam	**a1 – a4**	**b3**	**c1**	**d1,d3**

Course specification of postgraduate

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	15%
written exams	25%
Oral Exam	10%
total	50%

8- List of references

8.1. Notes and books

-Note book of biochemistry part II by staff members of biochemistry department

8.2. Essential books:

-Harper's Illustrated Biochemistry 2003. 26 ed. **Robert K. Murray, Daryl K. Granner, Peter A. Mayes**, **Victor W. Rodwell. Lange Medical Books/McGraw-Hill**.

- Lubert Stryer , Jeremy M. Berg , John L. Tymoczko . Biochemistry. 5th Revised edition. 2002.

8.3. Recommended texts

-Microbial Biochemistry, Second Edition. Springer Dordrecht Heidelberg London New York

-Biochemistry - Industrial Microbiology and Biotechnology The McGraw Hill Companies, 2002

8.4. Journals, Websites ……..etc

Journals:

-Journal of Clinical Microbiology

- Applied biochemistry and microbiology

Websites:

http:/www.elsevier.com/located/clinbiochem.

-http/www.ncb.nlm.nih.gov/pmc/journals/548.

-http//link.springer.com/journal/12291.

Course Coordinators
Prof.Dr.Mohamed Ahmed Kandeil

Head of Department
Prof.Dr.Mohamed Ahmed Kandeil

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Membrane composition of microorganisms and its growth	1-6	**a1**	**b2**		**d1, d3**
2	The Biological Fixation of Nitrogen	7- 13	**a1, a2**	**b1**	**C3**	**d1, d3**
3	Evolution of different biosynthetic pathways in microorganisms.	14 - 18	**a1, a2**	**b1**	**C2**	**d1, d3**
4	Biosynthesis of Amino Acids Derived from Phosphoglyceric Acid and Pyruvic Acid	19 - 23	**a1, a2**	**b2**		**d1, d3**
5	ATP-Generating Processes: Respiration and Fermentation	24 - 30	**a1, a2**	**b2**	**c3**	**d1, d3**
6	The Biosynthesis of Nucleotides	31 - 36	**a4**	**b3**	**C1**	**d1, d3**

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-43
Course title :	Radioactive materials and biochemistry
Program title:	Ph D degree In Veterinary Medical Sciences (biochemistry
Contact hours/ week	3hr/week(2 hr. lecture & 1 hr. practical)
Approval Date	

2-Professional information

Overall aims of course:

This course aims to:

1- Provide students a comprehensive base about the relation between the use of radioactive materials in the field of biochemistry.

2-provide students with skills and confidence to enable them to pursue a career in the field of radioactive biochemistry.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1- Describe radioactive isotopes and their biochemical use.

a.2. Describe different types and sources of radiation.

a.3. Recognize the biochemical effect of radiation.

a.4. Understand principles of radioimmunoassay

b-Intellectual skills

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

b.1. Differentiate between the useful and the dangerous biomedical effects of radioactive agents.

b.2. Interpret the types of radiations on relation to their sources.

C- Professional and practical skills

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

c1. Practice on the radioimmunoassay (RIA).

c.2. Use the lab safety roles about dealing with the radioactive isotopes.

d- General and transferable skills

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

d1. Summarize research findings in oral form in seminars and workshops.

d2 Communicate effectively with supervisors.

d3- Demonstrate information hold and library skills.

Course specification of postgraduate

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Radioactive materials and biochemistry (Lec. 1h./week, Pract . 2h./week)	Radioactive isotopes and its applied biochemical uses.	30	10	20
	Different types and sources of radiation	21	7	14
	Biochemical effects of radiation	21	7	14
	Applied biochemical uses of radioimmunoassay (RIA).	21	7	14
	Biochemical detection of radioactive isotopes.	15	5	10
	Total	108	36	72

5-Teaching and learning methods

5.1- Lectures (discussion) using board, data shows

5.2- Self learning by preparing essays and presentations (computer researches and faculty library)

5.3- Practical and small group sessions.

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-a4	b1,b2		
Practical Exam		b1,b2	c1,c2	
Oral Exam	a1-a4		c2	d1-d3

7.2. Assessment schedules

Method	Week(s)
Practical exams	During 45 th week -48 th week
written exams	During 45 th week -48 th week
Oral Exam	During 45 th week -48 th week

7.3. Weight of assessments

Assessment	Weight of assessment
Practical exams	15%
written exams	25%

Course specification of postgraduate

Oral Exam	10%
total	50%

8- List of references

8.1. Notes and books

-Note book of biochemistry part II by staff members of biochemistry department**.**

8.2. Essential books:

-Harper's Illustrated Biochemistry 2003. 26 ed. **Robert K. Murray,** Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell. Lange Medical Books/McGraw-Hill.

8.3. Recommended texts

Jiro Jerry Kaneko, John W. Harvey, Michael L. Bruss. Clinical - Essential Physiological Biochemistry An organ-based approach. Stephen Reed, 2009 John Wiley & Sons, Ltd

8.4. Journals, Websites ……..etc

Journals:

-Journal of radiation research and applied science (**www.sciencedirect** .com)

Websites:

http:/www.elsevier.com/located/clinbiochem.

-http/www.ncb.nlm.nih.gov/pmc/journals/548.

-http//link.springer.com/journal/12291

Course Coordinators
Prof.Dr.Mohamed Ahmed Kandeil

Head of Department
Prof.Dr.Mohamed Ahmed Kandeil

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Matrix for Achievement of Intended Learning Outcomes

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	Radioactive isotopes and its applied biochemical uses.	1-2	a1	b1		d1, d3
2	Different types and sources of radiation	3- 6	a2	b2		d1, d3
3	Biochemical effects of radiation	7 - 10	a3	b1		d1, d3
4	Applied biochemical uses of radioimmunoassay (RIA).	11 - 14	a4	b2	c1	d1, d3
5	Biochemical detection of radioactive isotopes.	15 - 17	a4	b2	C2	d1, d3

Course specification

	Topics	week	Intended learning outcomes of course (ILOs)			
	1st semester		K and U (a)	I.S (b)	P. P.S. (c)	G.T.S (d)
1						
2						
3						
4						
5						
6						
7						
8						
9						
	2nd semester					
10						
11						
12						
13						
14						
15						
16						
17						
18						