Beni-Suef University
Faculty of Veterinary Medicine
Department of Nutrition and Clinical Nutrition

Program Specification for Ph Degree
2017-2018

A-Basic information:

1- **Course title:** *PhD VSC.* **Specialty:- Nutrition**
2- **Program type:** *Single*
3- **Department offering program: Nutrition and Clinical Nutrition**
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- Application of skills and management of modern scientific research.
2- Work continuously for increasing knowledge in nutrition veterinary professional practice.
3- Recognize the current veterinary and public health problems & recent related approaches and their role in community development and environment protection.
4- Use the appropriate modern techniques and applications for mastering a wide range of veterinary professional skills.
5- Develop the communication and IT skills effectively, leading the team, making a decision based on available information and writing dissertations and scientific papers.
6- Efficient utilization of the available resources and improving as well as offering new resources.
7- Commitment to veterinary professional practice regulations and ethics.

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-Recognize up to date concepts in veterinary nutrition and public health practice and other career related sciences.
a2- Underline advanced veterinary scientific research principles, regulations, ethics and its different tools.
a3- State up to date veterinary professional practice regulations and ethics.
a4- Review quality control in veterinary professional practices.

a5- Record the veterinary professional practice effects on community development and environment protection.

b- Intellectual capacity:

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

b1- Analyze and evaluate relevant veterinary information for standardization and conclusion.
b2- Create Solution specialized veterinary and community problems by utilizing available resources.
b3- Set up scientific research studies with applied impact.
b4- Distinguish the risk in veterinary professional practice.
b5- Plan for the improvement of veterinary performance.
b6- Apply open discussion based on evidence.

c- Professional and practical skills:

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

c1- Apply the up to date recent veterinary professional skills.
c2- Write and assess the veterinary professional reports.
c3- Evaluate and improve the available and required material, tools and equipment in veterinary research projects.
c4- Use the up to date technology in veterinary professional and research practice.
c5- Apply the regulations and indicators for performance evaluation.

d- General and transferable skills:

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

d1- Communicate effectively and utilize the advanced information technology in the improvement of veterinary professional practice.
d2- Educate the others and evaluate their performance.
d3- Own self-evaluation and discipline with continuous learning.
d4- Utilize the resources to obtain knowledge and information.
d5- Work in research group and lead a team work in different veterinary professional and research practice.
d6- Manage the scientific meetings and discussions.

3- Academic standerds:

* The faculty mission, vision and strategic objective are confirmed to the academic standards. 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) are 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
		theoretical	practical		
According to selected courses	Selected (3-5) PhD courses from the various Faculty Department programs are depending on the thesis title.	5-8	6-8	Preliminary year	46 weeks

D- Courses contents

See courses specification

5- Program Admission Requirements

* According to the Faculty of Veterinary Medicine, Beni-Suef University By laws 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 are 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 is 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 nutrition and clinical nutrition. 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.

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 **Head of the Department**

Name: Dr. Asmaa S. A. Abdel-Daim **Prof. Dr. Elham Saleh**

Sig. :

PhD Program Specification Matrix (Program Courses with ILOS)

Program ILOs		Courses
Knowledge and understanding	a1	PhD-49 to PhD -85
	a2	Thesis
	a3	PhD -49 to PhD -85
	a4	PhD -49, PhD -50,M-51, PhD -57 and thesis
	a5	PhD -49 to PhD -85
Intellectual skills	b1	PhD -49 to PhD -85
	b2	PhD -49 to PhD -85and thesis
	b3	Thesis
	b4	PhD -49 to PhD -85and thesis
	b5	PhD -49 to PhD -85and thesis
	b6	Thesis
Professional and practical skills	c1	PhD -49 to PhD -85and thesis
	c2	PhD -49 to PhD -85and thesis
	c3	PhD -49 to PhD -85and thesis
	c4	PhD -49 to PhD -85 and Thesis
	c5	Thesis
General and transferable skills	d1	PhD -49to PhD -58 and thesis
	d2	PhD -49to PhD -58 and thesis
	d3	PhD -49to PhD -58 and thesis
	d4	PhD -49to PhD -58 and thesis
	d5	PhD -49to PhD PhD -58 and thesis
	d6	PhD -49to PhD -58 and thesis

PhD 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	a2	**a 3**	**a 4**	**a5**		**b1**	**b 2**	**b 3**	**b 4**	**b 5**	**b6**	**b7**	**b8**	**b9**	**c1**	**c2**	**c3**	**c4**	**c5**		**d 1**	**d2**	**d3**	**d4**	**d5**	**d 6**	**d 7**
Knowledge and understanding	a1	√																											
	a2		√																										
	a3			√																									
	a4				√																								
	a5					√																							
Intellectual skills	b1							√																					
	b2								√																				
	b3									√				√															
	b4										√				√		√												
	b5											√																	
	b6												√																
Professional and practical skills	c1																√												
	c2																	√											
	c3																		√										
	c4																			√									
	c5																				√								
General and transferable skills	**d1**																						√					√	
	d2																							√					
	d3																								√				
	d4																									√			
	d5																										√		√

	d6																											

Program aims – ILOS Matrix for the PhD program

مصفوفة اهداف البرنامج مع مخرجات التعلم المستهدفة

Program / **ILOs** / **Program ILOS**		**Program aims**						
		a- Application of skills and management of modern scientific research.	b- Work continuously for increasing knowledge in nutrition veterinary professional practice	c- Recognize the current veterinary and public health problems & recent related approaches and their role in community development and environment protection	d- Use the appropriate modern techniques and applications for mastering a wide range of veterinary professional skills	e- Develop the communication and IT skills effectively, leading the team, making a decision based on available information and writing dissertations and scientific papers..	f- Efficient utilization of the available resources and improving as well as offering new resources.	g-Commitment to veterinary professional practice regulations and ethics
Knowledge and understanding	a1. Recognize up to date concepts in veterinary nutrition and public health practice and other career related sciences.		√	√			√	
	a2- Underline advanced veterinary scientific research principles, regulations, ethics and its different tools.							√
	a3- State up to date veterinary professional practice regulations and ethics..	√	√					
	a4- Review quality control in veterinary professional							√

ILOs / Program ILOS		Program aims						
		a- Application of skills and management of modern scientific research.	b- Work continuously for increasing knowledge in nutrition veterinary professional practice	c- Recognize the current veterinary and public health problems & recent related approaches and their role in community development and environment protection	d- Use the appropriate modern techniques and applications for mastering a wide range of veterinary professional skills	e- Develop the communication and IT skills effectively, leading the team, making a decision based on available information and writing dissertations and scientific papers..	f- Efficient utilization of the available resources and improving as well as offering new resources.	g-Commitment to veterinary professional practice regulations and ethics
	practices.							
	a5- - Record the veterinary professional practice effects on community development and environment protection.		√					
Intellectual skills	b1) Analyze and evaluate relevant veterinary information for standardization and conclusion.		√					
	b2) Create Solution specialized veterinary and community problems by utilizing available resources			√	√			
	b3) Distinguish different knowledge to solve veterinary professional problems		√		√			
	b4) Design a scientific research plan				√	√		
	b5) Plan for the improvement of veterinary performance		√					
	b6- Apply open discussion based on evidence	√						
Professional skills	c1- Apply the up to					√		√

ILOs / Program ILOS	Program	a- Application of skills and management of modern scientific research.	b- Work continuously for increasing knowledge in nutrition veterinary professional practice	c- Recognize the current veterinary and public health problems & recent related approaches and their role in community development and environment protection	d- Use the appropriate modern techniques and applications for mastering a wide range of veterinary professional skills	e- Develop the communication and IT skills effectively, leading the team, making a decision based on available information and writing dissertations and scientific papers..	f- Efficient utilization of the available resources and improving as well as offering new resources.	g-Commitment to veterinary professional practice regulations and ethics
		Program aims						
	date recent veterinary professional skills.							
	c2- Write and assess the veterinary professional reports.					√		
	c3- - Evaluate and improve the available and required material, tools and equipment in veterinary research projects.	√						
	c4- Use the up to date technology in veterinary professional and research practice					√		
	c5 Apply the regulations and indicators for performance evaluation.							√
General and transferable skills	d1 - Communicate effectively and utilize the advanced information technology in the improvement of veterinary professional practice					√		
	d2- Educate the others and evaluate their performance					√		
	d3- Own self-evaluation and discipline with continuous learning				√			√

Program ILOs Program ILOS		Program aims						
		a- Application of skills and management of modern scientific research.	b- Work continuously for increasing knowledge in nutrition veterinary professional practice	c- Recognize the current veterinary and public health problems & recent related approaches and their role in community development and environment protection	d- Use the appropriate modern techniques and applications for mastering a wide range of veterinary professional skills	e- Develop the communication and IT skills effectively, leading the team, making a decision based on available information and writing dissertations and scientific papers..	f- Efficient utilization of the available resources and improving as well as offering new resources.	g-Commitment to veterinary professional practice regulations and ethics
	d4- Utilize the resources to obtain knowledge and information					√		
	d5- Work in research group and lead a team work in different veterinary professional and research practice					√		
	d6- Manage the scientific meetings and discussions.					√		

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-49
Course title :	Fundamentals of animal Nutrition
Program title:	PhD
Contact hours/ week	Lecture: 2 Practical: 2 Total: 4
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

By the end of this course, the student is able to:
1- Know the significance of different macro and micronutrients, different sources of essential nutrients and the drawbacks of their deficiency.
2-Employ the acquired knowledge about nutritional requirements of animal together with other related topics in his/her professional practices.
3-Apply evaluating approaches to knowledge in diagnosis, prevention and control of nutritional disorders of animal and other related sciences.
4-Show awareness of current problems and recent theories in the field of nutrition and clinical nutrition.
5-Apply different professional skills and techniques in diagnosis, prevention and control of nutritional deficiencies in animal.
6- Formulating well balanced ration for poultry.
7- Effectively communicate with others.
8-Perform academic and professional self-development and continuous learning.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1. Recall information about nutritional requirements of animals and the interaction of nutrients.
a2. Practice the Knowledge of nutrients significance, different sources of essential nutrients and the drawbacks of their deficiencies.
a3. Define technical nutritional terms, feedstuffs and related parameters.
a4. Explain the principles and importance of high quality practices in development of animal feed manufacture.
a5. Recognize the mutual influence between different professional practices and their impacts on the environment.
A6. Identify the principals of application of different quality management systems in animal feeding sectors.

B-Intellectual skills

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

Course specification of postgraduate

b1. Analyze and evaluate knowledge related to nutrients requirements of animals and interpret it to solve the related problems.
b2. Conduct a research study and/or write a scientific paper related to poultry sciences.
b3. Perform properly the enhancement in diagnosis, prevention and control of nutritional disorders of animals.

C- Professional and practical skills

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

c1. Differentiate among feedstuffs and have skills to judge their quality for consumption.
c2. Apply different conventional and advanced techniques in the field of feeding system and ration formulation.
C3. Write and evaluate reports related to animal nutrition and feeding.

d- General and transferable skills

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

d1. Communicate effectively using different means.
d2. Properly use the information technologies for development of his/her professional abilities.
d3. Use different facilities for gaining knowledge and information.

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 2h./week, Practical 2h./week)	**Introduction- Body composition**	1,2	6	6	-
	Feedstuffs **- Classification of feedstuffs**	1	2	-	2
	Technical terms	2,3	4	-	4
	Water and its metabolism	3	2	2	-
	Concentrates as energy sources & deleterious factors	4,5,6	6	-	6
	Carbohydrates and their metabolism	4	2	2	-
	Proteins and their metabolism	5	2	2	-
	Lipids and their metabolism.	6	2	2	-
	Plant protein sources & deleterious factors	7,8,9	6	-	6

Course specification of postgraduate

	Minerals- macro & microelements **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	10	10	-
	-Forage and roughage	10,11,12 ,13	8	-	8
	Vitamins **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	8	8	-
	-Feed processing and manufacture	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	4	4	-
	Feed analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19,20	6	6	-
	-Microscopical examination **-Chemical analyses** **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10
	Feeding standards and nutritional requirements for: **-maintenance** **-growth** **-fattening**	21,22	4	4	-
	-reproduction and lactation **-work production** **-wool production**	23,24,25	6	6	-
	Ration formulation methods	26	2	-	2
	Feeding farm animals **-Feeding dairy cows and calves** **-Feeding fattening animals**	26,27,28	6	6	-
	Ration formulation of dairy cattle	27,28,29	6	-	6
	-Feeding sheep and goat **-Feeding camel**	29,30,31	6	6	-
	Ration formulation of sheep and goat **Ration formulation of camel**	30,31	4	-	4
	-Feeding equine	32,33	4	4	-

Course specification of postgraduate

	Ration formulation of equine	32	2	-	2
	-Feeding poultry and rabbit	34, 35	4	4	-
	Ration formulation for poultry	33,34	4	-	4
	Feed additives- -Introduction	36	2	2	-
	-Nutritional feed additives -Non Nutritional feed additives	35,36	4	-	4
	Total		144	72	72

5-Teaching and learning methods

- **Lectures:**
  Depends on the sharing efforts of the students and supported with multimedia aids, discussion, brain storming.
- **Practical sections:**
- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.
- **Self-learning:** Electronic learning, scientific search on related websites, international, national and local journals, and related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a6**	**b1 to b3**		
Practical Exam			**c1 to c2**	
Oral Exam	**a1 to a6**	**b1 to b3**	**c1 to c2**	**d1 to d3**

6.2. Assessment schedules

Method	**Week(s)**
Written exam	**During December**
Practical exam	**During December**
Oral exam	**During December**
Student activities	**Along the year**

7.3. Weight of assessments

Course specification of postgraduate

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

7- List of references

7.1. Notes and books

Textbook of Animal and Poultry Nutrition – part 1

Practical of feedstuffs and ration formulation – part 1

Textbook of Animal and Poultry Nutrition – part 2

Practical of feedstuffs and ration formulation – part 2

Text book of Human Nutrition and Animal Byproducts

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A. Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.
2- Frappe, D. (1998): Equine Nutrition And Feeding .2nd ed.
3- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
4- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.
5- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition

Course specification of postgraduate

-Veterinary Record
-Journal of Dairy Science
Websites:
www.google.com
-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Beni Suef University
Faculty of Veterinary Medicine

Course specification

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	***Introduction-*** **animal body Composition of the and its food**	1,2	**a1,a6**	**b3**	**-**	**d3**
2	**Feedstuffs** **- Classification of feedstuffs**	1	**a2, a3**	**-**	**c2**	**d2**
3	**- Nutrition terms**	2,3	**a2, a3**	**-**	**c2**	**d2,d3**
4	**Water and its metabolism**	3	**a1,a6**	**b3**	**-**	**d3**
5	**Concentrates as energy sources & deleterious factors**	4,5,6	**-**		**-c1,c2**	**d1, d2, d3**
6	**Carbohydrates and their metabolism**	4	**a1,a5**	**b3**	**-**	**d3**
7	**Proteins and their metabolism**	5	**a1,a6**	**b3**	**-**	**d3**
8	**Lipids and their metabolism.**	6	**a1,a6**	**b3**	**-**	**d3**
9	**Plant protein sources & deleterious factors**	7,8,9	**-**	**-**	**c1,c2**	**d1, d2, d3**
10	**Minerals- macro & microelements** **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	**a1, a3,a4,a5**	**b1,b2,b3**	**-**	**d1, d2, d3**
11	**-Forage and roughage**	10,11,12,13	**a2**	**-**	**c1,c2**	**d1, d2, d3**
12	**Vitamins** **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14,15	**a1, a3,a4,a5**	**b1,b2,b3**	**-**	**d1, d2**
13	**-Feed processing and manufacture**	14,15,16,17	**a2**	**-**	**c1,c2**	**d1, d2, d3**
1	**Feed intake and factors affecting**	16,17	**a1, a2, a3,a4,a5,a6**	**b1,b2,b3**	**-**	**d1, d2,d3**

Course specification

4						
15	**Feedstuffs analyses -Physical inspection**	18,19,20			**c1,c2**	**d1, d2**
16	**Digestion & absorption Digestibility of feeds**	18,19,20	**a1, a6**	**b2,b3**	**-**	**d1, d2,d3**
17	**-Microscopical examination -Chemical analyses -Using standard feed analyses tables**	21,22,23,24,25	-	-	**c1,c2**	**d1,d2**
18	**Feeding standards and nutritional requirements for: -maintenance -growth -fattening**	21,22	**a3,a4,a5**	**b2,b3**	**-**	**d1,d2.d3**
19	**-reproduction and lactation -work production -wool production**	23,24,25	**a3,a4,a5**	**b1,b2**	**-**	**d1, d3**
20	**Ration formulation methods**	26	-	-	**c1, c2**	-
21	**Feeding farm animals -Feeding dairy cows and calves -Feeding buffalos**	26,27,28	**a3,a4,a5**	**b1,b2,b3**	**-**	**d2, d3**
10	**Ration formulation of dairy cattle**	27,28,29			**c1, c2**	**d2, d3**
	-Feeding sheep and goat -Feeding camel	29,30,31	**a3,a4,a5**	**b1,b2,b3**		**d1,d2,d3**
11	**Ration formulation of sheep and goat Ration formulation of camel**	30,31			**c1, c2**	**d2, d3**
	-Feeding equine	32,33	**a3,a4,a5**	**b1,b2,b3**	**-**	**d1,d2,d3**
	Ration formulation of equine	32			**c1, c2**	**d2, d3**
	-Feeding poultry	34, 35	**a3,a4,a5**	**b1,b2,b3**		
	Ration formulation for poultry	33,34			**c1, c2**	**d2, d3**
	Feed additives- -Introduction	36	**a3,a4,a5**	**b1,b2,b3**		**d1,d2,d3**

Course specification

	-Nutritional feed additives **-Non Nutritional feed additives**	35,36			**c1, c2**	**d2, d3**
Graduate activity		**Along the course**	**a1, a2, a3, a4,a5,a6**	**b1, b2, b3**	**C1,C2**	**d1, d2, d3**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-50
Course title :	Feedstuffs
Program title:	PhD
Contact hours/ week	Lecture: 2 Practical: 2 Total: 4
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

By the end of this course, the student be able to:
1-Apply knowledge in evaluation, identification, inspection and examination of feedstuffs and their use in rations.
2-Integrate the acquired knowledge about feedstuffs values in tables with the other related sciences.
3- Aware of the current problems in feed industry and recent theories illustrating prevention and control of these problems.
4-Identify the practical problems facing feedstuffs industry and their solutions.
5-Develop new techniques and tools to be applied in feedstuffs evaluation and use.
6-Use the suitable technologies and professional practices in problem solving.
7-Take decisions depending on the available data in different professional and practical contexts.
8-Employ the available resources, develop them and search for new ones.
9-Show awareness of his/her role in community development and environmental conservation in the area of feed industry in the light of global and regional variables.
10-Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1. State information about feedstuffs identification and their suitability and use for animal feeding.
a2. Underline principles and morals of scientific research in the field of feed industry.
a3. Identify the legal and moral rules in different practices applied in analysis, inspection and feed evaluation.
a4. Recognize the principles and importance of high quality practices in development of feed industry.

b-Intellectual skills

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

b1. Analyze and evaluate knowledge related to feedstuffs and interpret it to solve the related problems.

Course specification of postgraduate

b2. Plane a good solve for field problems of feed industry affecting animal nutrition and economics using the available data.
b3. Illustrate different risk factors for each practice related to chemical analysis and feed manufacturing.
b4. Create properly plan for performance enhancement in feedstuffs classification and nomenclature.

C- Professional and practical skills

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

c1. Perform different conventional and advanced techniques in the field of feed analysis.
c2. Apply different available tools and methods regarding feedstuffs evaluation and ration formulation.

d- General and transferable skills

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

d1. Communicate effectively using different means.
d2. Properly use the information technologies for development of his/her professional abilities.
d3. Assess how to detect his/her learning requirements.
d4. Use different facilities for gaining knowledge and information.

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 2h./week, Pract 2h./week)	**Introduction** **Composition of the animal body and its food**	1,2	4	4	-
	Feedstuffs **- Classification of feedstuffs**	1	2	-	2
	- Technical Nutrition terms	2,3	4	-	4
	Water and its metabolism	3	2	2	-
	Concentrates as energy sources & deleterious factors	4,5,6	6	-	6
	Carbohydrates	4	2	2	-
	Proteins	5	2	2	-
	Lipids	6	2	2	-

Course specification of postgraduate

	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals **- Essential macroelements** **- Essential microelements**	7,8,9,10, 11	10	10	-
	-Forage and roughage	10,11,12 ,13	8	-	8
	Vitamins **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	8	8	-
	-Feed processing and manufacture	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	4	4	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19,20	6	6	-
	-Microscopical examination **-Chemical analyses** **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10
	Feeding standards and nutritional requirements for ruminants and nonruminants	21,22	4	4	-
	- Animal feed safety and feed manufacturing **-Feed contaminants and its sources**	23,24,25	6	6	-
	Environmental factors inducing feed deterioration	26	2	-	2
	-Exogenous contaminants **-Mycotoxins -Pesticides** **-Heavy metals**	26,27,28	6	6	-
	Feed manufacturing quality assurance and its monitoring	27,28,29	6	-	6
	- Nanotechnology in feeds	29,30,31	6	6	-
	Feeding systems of farm animals	30,31	4	-	4

Course specification of postgraduate

	-Feeds of large animals	32,33	4	4	-
	-Feeds of poultry	32	2	-	2
	- Feeds of fish	34, 35	4	4	-
	Storage of feeds	33,34	4	-	4
	Feed additives- **-Introduction**	36	2	2	-
	-Nutritional feed additives **-Non Nutritional feed additives**	35,36	4	-	4
	Total		144	72	72

5-Teaching and learning methods

- **Lectures:** depending on the sharing efforts of the students, discussion, brain storming and supported with multimedia aids.
- **Practical sections:** Laboratory
- **Self-learning:** Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a4**	**b1 to b3**		
Practical Exam			**c1 to c2**	
Oral Exam	**a1 to a4**	**b1 to b3**	**c1 to c2**	**d1 to d3**
Oral Exam	**a1 to a4**	**b1 to b4**	**c1 to c2**	**d1 to d4**

6.2. Assessment schedules

Method	**Week(s)**
Written exam	**During December**
Practical exam	**During December**
Oral exam	**During December**
Student activities	**Along the year**

6.3. Weight of assessments

Course specification of postgraduate

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

5-Text Book of Human Nutrition and Animal Byproducts

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.
2- Frappe, D. (1998): Equine Nutrition And Feeding .2nd ed.
3- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
4- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.
5- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition

Course specification of postgraduate

-Veterinary Record
-Journal of Dairy Science
Websites:
www.google.com
-www. FAO
www.Sciencedirect.com
- **www. Net veterinary resources- Agricultural sites**
-www. Veterinary and agricultural web resources, livestock and poultry

Name: Dr. Asmaa Salah **Prof. Dr. Elham Saleh**

Sig. :

Course specification

	Topics	Week	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction** **Composition of the animal body and its food**	1,2	**a1, a2**	**b1,b2,b3,b4**	**-**	**d1, d2**
2	**Feedstuffs** **- Classification of feedstuffs**	1	**-**	**b1,b2,b3**	**-**	**d1, d2**
3	**- Nutrition terms**	2,3	**a1, a2, a3**	**b1,b2,b3**	**-**	**d1, d2**
4	**Water and its metabolism**	3	**a1, a2**	**b1,b2,b3**	**-**	**d1, d2**
5	**Concentrates as energy sources & deleterious factors**	4,5,6	**-**	**b1,b2,b3**	**-**	**d1, d2**
6	**Carbohydrates**	4	**a1, a2**	**b1,b2,b3**	**-**	**d1, d2**
7	**Proteins**	5	**a1, a2**	**b1,b2,b3**	**-**	**d1, d2**
8	**Lipids**	6	**a1, a2**	**b1,b2,b3**	**-**	**d1, d2**
9	**Plant protein sources & deleterious factors**	7,8,9	**-**	**b1,b2,b3**	**-**	**d1, d2, d3**
10	**Minerals** **- Essential macroelements** **- Essential microelements**	7,8,9,10, 11	**a1, a2**	**b1,b2,b3**	**-**	**d1, d2, d3**
11	**-Forage and roughage**	10,11,12,13	**a1, a2, a3**	**b1,b2,b3**	**-**	**d1, d2**
12	**Vitamins** **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14,15	**a1, a2**	**b1,b2,b3**	**-**	**d1, d2**
13	**-Feed processing and manufacture**	14,15,16,17	**a1, a2, a3**	**b1,b2,b3**	**-**	**d1, d2**
14	**Feed intake and factors affecting**	16,17	**a1, a2**	**b1,b2,b3**	**-**	**d1, d2**

Course specification

15	**Feedstuffs analyses -Physical inspection**	18,19,20	-	**b1,b2,b3,b4**	**c1, c2**	**d1, d2**
16	**Digestion & absorption Digestibility of feeds**	18,19,20	**a1, a2**	**b2,b3,b4**	-	**d3, d4**
17	**-Microscopical examination -Chemical analyses -Using standard feed analyses tables**	21,22,23,24, 25		**b1,b2,b3,b4**	**c1, c2**	**d3, d4**
18	**Feeding standards and nutritional requirements**	21,22	**a1,a2,a4**	**b4**	-	**d3, d4**
19	**- Animal feed safety and feed manufacturing -Feed contaminants and its sources**	23,24,25	**a1,a2,a3,a4**	**b3,b4**	-	**d3, d4**
20	**Environmental factors inducing feed deterioration**	26	**a1,a2,a3,a4**	**b1,b2,b4**	-	**d2, d4**
21	**-Exogenous contaminants -Mycotoxins -Pesticides -Heavy metals**	26,27,28	**a1,a2,a3,a4**	**b1,b2,b3,b4**	-	**d2, d4**
22	**Feed manufacturing quality assurance and its monitoring**	27,28,29	**a1,a2,a3,a4**	**b1,b2,b3,b4**	-	**d2, d4**
23	**- Nanotechnology in feeds**	29,30,31	**a1,a2,a3,a4**	**b1,b2,b3,b4**	-	**d2, d4**
24	**-Feeding systems of farm animals**	30,31	**a1,a2,a3,a4**	**b1**	--	**d2, d4**
25	**-Feeds of large animals**	32,33	**a1,a2,a3,a4**	**b1,b2,b4**	-	**d2, d4**
26	**-Feeds of poultry**	32	**a1,a2,a3,a4**	**b1,b2,b4**	-	**d2, d4**
27	**- Feeds of fish**	34, 35	**a1,a2,a3,a4**	**b1,b2**	-	**d2, d4**
28	**Storage of feeds**	33,34	**a1,a2,a3,a4**		-	**d1,d2,d3,d4**
29	**Feed additives- -Introduction**	36	**a1,a2**	**b1,b2**	-	**d1,d2,d3,d4**
30	**-Nutritional feed additives -Non Nutritional feed additives**	35,36	-	-	**c1,c2**	**d1,d2,d3**

Course specification

Student activity	**Along the course**	**a1, a2, a3, a4**	**b1, b2, b3,b4**	**c2,c2**	**d1, d2, d3, d4**	

Beni Suef University
Faculty of Veterinary Medicine

Course specification

1-Basic information

Course Code:	Ph-51
Course title :	**Feeding farm animals and fish**
Program title:	PhD
Contact hours/ week	Lecture: 2 Practical: 2 Total: 4
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

By the end of this course, the student be able to:
1-Apply the knowledge of nutrients metabolism and nutritional disorder of animals and other related sciences.
2- Illustrate diagnosis, prevention and control of nutritional problems of animals and fish.
3-Identify the nutritional problems facing animal and fish farming and their solutions.
4-Master professional skills and techniques in diagnosis of nutritional disorders of animals and fish.
5- Use the suitable technologies to serve of his/her professional practices.
6-Make decisions depending on the available data in different professional and practical contexts.
7-Employ the available resources and develop them and search for new ones.
8-Show awareness of his/her role in community development and environmental conservation in the area of nutritional requirements in the light of global and regional variables.
9-Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1. Recall information and knowledge in the field of nutritional requirements of animal and fish.
a2. Know the principles of scientific research in the field of nutrition and nutritional disorders of animal and fish.

Course specification

a3. Identify the legal and moral rules in different practices applied in diagnostic, preventive and control of nutritional problems of animal and fish.
a4. Recognize the mutual influence between different professional nutritional practices and their impacts on the environment.
a5. Identify the principals of nutrition in application of different quality management systems in animal raising practices.

B-Intellectual skills

By successful completion of the course, the student should be able to:
b1. Analyze and evaluate knowledge related to nutritional requirements of animals and interpret it to solve the related problems.
b2. Interpret field problems of nutritional origin affecting animals and fish husbandry and economics using the available data.
b3. Create research studies that add new knowledge to the area of nutritional disorders of animals.
b4. Assemble different nutritional factors for each practice related to digestibility, deficiencies and balanced ration formulation.

C- Professional and practical skills

By successful completion of the course, the student should be able to:
c1. Perform different conventional and advanced techniques in the field of nutritional requirements of animals and fish.
c2. Write and evaluate reports related to diagnosis of field cases of nutritional origin.
c3. Assess different available tools and methods regarding diagnosis, prevention and control of nutritional problems of animals.

D- General and transferable skills

By successful completion of the course, the student should be able to:
d1. Communicate effectively using different means.
d2. Properly use the information technologies for development of his/her professional abilities.
d3. Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.
d4. Assess him/her and learn how to detect his/her learning requirements.
d5. Use different facilities for gaining knowledge and information.

Course specification

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 2h./week, Pract 2h./week)	**Introduction to animal nutrition Composition of the animal body and its food**	1,2	6	6	-
	Feedstuffs - Classification of feedstuffs	1	2	-	2
	- Technical Nutrition terms	2,3	4	-	4
	Water and its metabolism	3	2	2	-
	Concentrates as energy sources & deleterious factors	4,5,6	6	-	6
	Carbohydrates and their metabolism	4	2	2	-
	Proteins and their metabolism	5	2	2	-
	Lipids and their metabolism.	6	2	2	-
	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements - Introduction, distribution, functions - Deficiencies, supplements	7,8,9,10, 11	10	10	-
	-Forage and roughage	10,11,12, 13	8	-	8

Course specification

	Vitamins **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14, 15	8	8	-
	-Feed processing	14,15,16, 17	8	-	8
	Feed intake and factors affecting	16,17	4	4	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19,20	6	6	-
	-Chemical analyses **-Using standard feed analyses tables**	21,22,23, 24,25	10	-	10
	Feeding standards and nutritional requirements for: **-maintenance** **-growth** **-fattening**	21,22	4	4	-
	-reproduction and lactation **-work production** **-wool production**	23,24	6	6	-
	Ration formulation methods	25	2	-	2
	Feeding fish	26	2	2	-

Course specification

	Ration formulation of fish	27	2	-	2
	Feeding farm animals **-Feeding dairy cows and calves**	26,27,28	6	6	-
	Ration formulation of dairy cattle	28,29	6	-	6
	-Feeding sheep and goat	29,30,31	6	6	-
	Ration formulation of sheep and goat	30,31	4	-	4
	-Feeding equine	32,33	4	4	-
	Ration formulation of equine	32	2	-	2
	-Feeding camel	34, 35	4	4	-
	Ration formulation for camel	33,34	4	-	4
	Feed additives-	36	2	2	-
	Feed contaminants **-Mycotoxins** **-Pesticides** **-Heavy metals**	35, 36	4	-	4
	Total		144	72	72

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

Course specification

- **Practical sections:**
- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.
- **Self learning**: Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a5**	**b1 to b4**		
Practical Exam			**c1 to c2**	
Oral Exam	**a1 to a5**	**b1 to b4**	**c1 to c2**	**d1 to d3**

6.2. Assessment schedules

Method	**Week(s)**
Written exam	**During December**
Practical exam	**During December**
Oral exam	**During December**
Student activities	**Along the year**

6.3. Weight of assessments

Course specification

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1
2-Practical of feedstuffs and ration formulation – part 1
3-Textbook of Animal and Poultry Nutrition – part 2
4-Practical of feedstuffs and ration formulation – part 2
5-Textbook of Human Nutrition and Animal Byproducts.

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.
2- Frappe, D. (1998): Equine Nutrition And Feeding .2nd ed.
3- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
4- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.

Course specification

5- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition
-Veterinary Record
-Journal of Dairy Science

Websites:

www.google.com
-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators	**Head of Department**
Name: Dr. Asmaa Salah Awad	**Prof. Dr. Elham Saleh**
Sig. :	

Course specification

Topics		Wk.	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction to animal nutrition Composition of the animal body and its food**	1,2	**a1,a3**	**b2,b4**	**-**	**d2,d3,d5**
2	**Feedstuffs - Classification of feedstuffs**	1	**-**	**-**	**c1,c2,c3**	**d3**
3	**-Technical nutrition terms**	2,3	**-**	**-**	**c2**	**d1,d2.d3,d4,d5**
4	**Water and its metabolism**	3	**-**	**b2,b4**	**-**	**d1, d2**
5	**Concentrates as energy sources & deleterious factors**	4,5,6	**-**	**-**	**c1,c2.c3**	**d1,d2.d3,d4,d5**
6	**Carbohydrates and their metabolism**	4	**a1, a3**	**b2,b4**	**-**	**d1, d2**
7	**Proteins and their metabolism**	5	**a1,a3**	**b2,b4**	**-**	**d1, d2**
8	**Lipids and their metabolism.**	6	**a1, a3**	**b2,b4**	**-**	**d1, d2**
9	**Plant protein sources & deleterious factors**	7,8,9	**-**	**-**	**c1,c2.c3**	**d1,d2.d3,d4,d5**
10	**Minerals- macro & microelements - Introduction, distribution, functions - Deficiencies, supplements**	7,8,9,10, 11	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	**-**	**d3, d4, d5**
11	**-Forage and roughage**	10,11,12 ,13		**-**	**c1,c2.c3**	**d3, d4, d5**
12	**Vitamins - Vitamin and animal health - Fat-soluble vitamins - Water-soluble vitamins**	12,13,14 ,15	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	**-**	**d1,d2.d3,d4,d5**

Course specification

13	**-Feed processing and manufacture**	14,15,16 ,17	-	-	**c1, c2, c3**	**d3, d4, d5**
14	**Feed intake and factors affecting**	16,17	**a1,a3,a4,a5**	**b2,b4**	-	**d2, d4, d5**
15	**Feedstuffs analyses -Physical inspection**	18,19,20	-	-	**c1, c2, c3**	**d1,d2.d3,d4,d5**
16	**Digestion & absorption Digestibility of feeds**	18,19,20	**a1,a2,a3,a4,a5**	**b b1,b2,b3,b4**	-	**d2, d4, d5**
17	**-Chemical analyses -Using standard feed analyses tables**	21,22,23 ,24,25	-	-	**c1, c2, c3**	**d2, d4, d5**
18	**Feeding standards and nutritional requirements for: -maintenance -growth -fattening**	21,22	**a1,a2,a3**	**b2,b4**	-	**d2, d4, d5**
19	**-reproduction and lactation -work production -wool production**	23,24	**a1,a2,a3**	**b2,b4**	-	**d2, d4, d5**
20	**Ration formulation methods**	25	-	-	**c1, c2, c3**	**d2, d4, d5**
21	**Feeding fish**	26	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**		**d1,d2.d3,d4,d5**
22	**Ration formulation of fish**	27		-	**c1, c2, c3**	**d2, d4, d5**
23	**Feeding farm animals -Feeding dairy cows and calves**	26,27,28	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**		**d1,d2.d3,d4,d5**
	Ration formulation of dairy cattle	28,29	-	-	**c1,c2.c3**	**d3,d4,d5**
	-Feeding sheep and goat	29,30,31	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	-	**d1,d2.d3,d4,d5**
	-Feeding equine	32,33	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	-	**d1,d2.d3,d4,d5**

Course specification

	Ration formulation of equine	32	-	-	**c1,c2.c3**	**d1,d2,d3,d4**
	-Feeding camel	34, 35	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	-	**d1,d2,d3,d4,d5**
	Ration formulation for camel	33,34	-	-	**c1,c2.c3**	**d1,d2,d3,d4**
	Feed additives-	36	**a1,a2,a3**	**b1,b2,b3**	-	**d1,d2**
	Environmental factors inducing feed deterioration -Mycotoxins -Pesticides - Heavy metals	35, 36	-		**c1,c2.c3**	**d1,d2,d3,d4**
Student activity		**Along the course**	**a1,a2,a3,a4,a5**	**b1, b2, b3,b4**	**c1,c2.c3**	**d1,d2,d3,d4**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-52
Course title :	**Poultry and rabbit Nutrition**
Program title:	PhD
Contact hours/ week	Lecture: 2 Practical: 2 Total: 4
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

By the end of this course, the student is able to:
1-Acquire knowledge about all essential macro and micronutrients and their metabolism and deficiencies in poultry and rabbits
2-Apply evaluating approaches to knowledge in diagnosis, prevention and control of nutritional disorders of rabbit and poultry.
3-Aware of the nutritional requirements and how to formulate rations for feeding poultry using feedstuffs which are identified evaluated and can be analyzed.
4-Identify the practical problems facing poultry industry and their solutions.
5-Master professional skills and techniques in diagnosis of different poultry and rabbit disorders.
6-Use the suitable technologies to serve of his/her professional practices.
7-Make decisions depending on the available data in different professional and practical aspects.
8-Employ the available resources and develop them and search for new ones.
9-Show awareness of his/her role in community development and environmental conservation in the area of different rabbit diseases.in the light of global and regional variables.
10-Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1. Define recent theories and knowledge in the field of poultry and rabbit nutrition and related sciences.
a2. Underline principles of scientific research in the field of poultry and rabbit nutritional requirements.
a3. Identify the technical terms related to poultry and rabbit nutrition and feeding.
a4. Recognize the essentiality of all nutrients and importance of poultry nutrition.
a5. Define the mutual influence of different professional practices and their impacts on the environment.
a6. Identify the principals of application of different quality management systems in poultry and rabbit raising sectors and practices.

Course specification of postgraduate

b-Intellectual skills

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

b1. Analyze and evaluate knowledge related to different poultry and rabbit disorders and interpret it to solve the related problems.
b2. Set up solutions to field problems of different poultry and rabbit nutrition, husbandry and economics using the available data.
b3. Create research studies that add new knowledge to the area of bacterial, viral, parasitic, nutritional and mycotic diseases of poultry and rabbit.
b4. Demonstrate all essential nutrients, nutritional requirements, feeding systems and high quality ration formulation.
b5. Design plan for performance enhancement in interpretation of different data shown in the standard nutritional requirements tables.

C- Professional and practical skills

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

c1. Perform different conventional and advanced techniques in the field of nutritional requirements of poultry and rabbit.
c2. Write and evaluate reports related to diagnosis of field cases of nutritional origin.
c3. Assess different available tools and methods regarding diagnosis, prevention and control of different nutritional disorders.

d- General and transferable skills

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

d1. Use the information technologies for development of his/her professional abilities.
d2. Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.
d3. Learn how to detect his/her learning requirements.
d4. Carry out rules and indicators for evaluation of the performance of others.
d5. Use different facilities for gaining knowledge and information.

4-Topics and contents

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 2h./week, Pract 2h./week)	**Introduction to animal nutrition** **Composition of the animal body and its food**	1,2	6	6	-
	Feedstuffs **- Classification of feedstuffs**	1	2	-	2
	-Technical Nutrition terms	2,3	4	-	4
	Water and its metabolism	3	2	2	-
	Concentrates as energy sources & deleterious factors	4,5,6	6	-	6
	Carbohydrates and their metabolism	4	2	2	-
	Proteins and their metabolism	5	2	2	-
	Lipids and their metabolism.	6	2	2	-
	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	10	10	-
	-Forage and roughage	10,11,12 ,13	8	-	8
	Vitamins **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	8	8	-
	-Feed processing and manufacture	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	4	4	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19,20	6	6	-
	- -Chemical analyses **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10

Course specification of postgraduate

	Feeding standards and nutritional requirements for: **-maintenance** **-growth** **-fattening**	21,22	4	4	-
	-Reproduction and egg production **-Fur production**	25,26	4	-	4
	Feeding poultry **-Feeding broilers**	27,28	4	4	-
	-Feeding layers **-Feeding water fowls**	29,30	4	4	2
	Feeding Turkey	31,32	4	4	-
	Feeding pigeon	33,34	4	4	-
	Feeding rabbit	35	4	4	-
	Ration formulation for poultry and rabbit	28,29,30	4	-	4
	Feed additives- **-Introduction**	36	2	2	-
	-Nutritional feed additives **-Non Nutritional feed additives** **- Nanoparticles feed additives**	31,32, 33	**6**	**-**	6
	Feed contaminants **-Mycotoxins** **-Pesticides** **- Heavy metals**	34, 35,36	6	-	6
	Total		144	72	72

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

- **Practical sections:**

- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.

- **Self learning**: Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

Course specification of postgraduate

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1 to a6	b1 to b5		
Practical Exam			c1 to c3	
Oral Exam	a1 to a6	b1 to b5	c1 to c3	d1 to d5

6.2. Assessment schedules

Method	Week(s)
Written exam	During December
Practical exam	During December
Oral exam	During December
Student activities	Along the year

6.3. Weight of assessments

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

5-Textbook of Human Nutrition and Animal Byproducts.

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.

Course specification of postgraduate

5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.

2- National Research Council (1994): Nutrient Requirements of poultry, 7th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
--Veterinary Record

Websites:

www.google.com
-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Beni Suef University
Faculty of Veterinary Medicine

Course specification

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction to poultry nutrition** **Composition of the animal body and its food**	1,2	**a1,a2,a4**	**b1,b4**	-	**d1, d2,d5**
2	**Feedstuffs** **- Classification of feedstuffs**	1	-	-	**c1,c2**	**d1, d2,d3**
3	**- Technical nutrition terms**	2,3	-	-	**c1,c2**	**d1, d2**
4	**Water and its metabolism**	3	**a1,a2,a4**	**b1,b4**	-	**d1, d2**
5	**Concentrates as energy sources & deleterious factors**	4,5,6	-	-	**c1,c2,c3**	**d1, d2**
6	**Carbohydrates and their metabolism**	4	**a1,a2,a4**	**b1,b4**	-	**d1, d2**
7	**Proteins and their metabolism**	5	**a1,a2, a4**	**b1,b4**	-	**d1, d2**
8	**Lipids and their metabolism.**	6	**a1,a2,a4**	**b1,b4**	-	**d3, d4, d5**
9	**Plant protein sources & deleterious factors**	7,8,9	-	-	**c1,c2,c3**	**d1, d2**
10	**Minerals- macro & microelements** **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	**a1,a2, a4**	**b1,b4**	-	**d3, d4, d5**
11	**-Forage and roughage**	10,11,12,13	-	-	**c1, c2, c3**	**d2, d4, d5**
12	**Vitamins** **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14,15	**a1,a2, a4**	**b1,b4**		**d2, d4, d5**
13	**-Feed processing and manufacture**	14,15,16,17	-	-	**c1, c3**	**d2, d4, d5**
14	**Feed intake and factors affecting**	16,17	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**		**d2, d4, d5**
15	**Feedstuffs analyses** **-Physical inspection**	18,19,20	-	-	**c1, c2, c3**	**d2, d4, d5**

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16	**Digestion & absorption Digestibility of feeds**	18,19,20	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**		**d2, d4, d5**
17	**-Chemical analyses -Using standard feed analyses tables**	21,22,23,24,25	-	-	**c1, c2, c3**	**d2, d4, d5**
18	**Feeding standards and nutritional requirements for: -maintenance -growth -fattening**	21,22	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
19	**-Reproduction and egg production -Fur production**	25,26	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
20	**Feeding poultry -Feeding broilers**	27,28	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
21	**-Feeding layers -Feeding water fowls**	29,30	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
22	**Feeding Turkey**	31,32	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
23	**Feeding pigeon**	33,34	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
	Feeding rabbit	35	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	-	**d1,d2,d3,d4,d5**
	Ration formulation for poultry and rabbit	28,29,30	-	-	**c1,c2,c3**	**d1,d2,d3,d4,d5**
	Feed additives- -Introduction	36	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**		**d1,d2,d3,d4,d5**
	-Nutritional feed additives -Non Nutritional feed additives - Nanoparticles feed additives	31,32,33	-	-	**c1,c2,c3**	**d1,d2,d3,d4,d5**
	Feed contaminants -Mycotoxins -Pesticides Heavy metals	34, 35,36	-	-	**c1,c2,c3**	**d1,d2,d3,d4,d5**
Student activity		**Along the course**	**a1,a2,a3,a4,a5,a6**	**b1,b2,b3,b4,b5**	**c1,c2,c3**	**d1, d2, d3, d4,d5**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-53
Course title :	**Wild Animals Nutrition**
Program title:	PhD
Contact hours/ week	Lecture: 1 Practical: 2 Total: 3
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

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

1- Evaluate approaches to knowledge in diagnosis, prevention and control of wild animal's nutritional disorder and other related sciences.
2-Integrate the acquired knowledge about wild animal's nutritional problems with the other related sciences and develop the relations in between.
3-Aware of the current problems facing these wild animals and recent theories illustrating control of wild animal nutritional requirements.
4-Identify the practical problems facing wild animal's requirements and their solutions.
5-Master professional skills and techniques diagnosis of wild animals feeding system.
6-Use the suitable technologies to serve of his/her professional practices.
7-Make decisions depending on the available data in different professional and practical aspets.
8-Show awareness of his/her role in community development and environmental conservation in the area of wild animal's nutrition in the light of global and regional variables.
9-Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1. Enumerate information and knowledge in the field of wild animals nutrition and related sciences.
a2. Identify technical nutritional terms, feedstuffs and related parameters.
a3. Recognize the mutual influence between different professional practices and their impacts on the environment.

b-Intellectual skills

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

b1. Analyze and evaluate knowledge related to wild animal's requirements and interpret it to solve the related problems.
b2. Create solutions to field problems of nutritional origin affecting wild animals using the available data.

Course specification of postgraduate

b3. Conduct research studies that add new knowledge to the area of wild animal's nutrition.
b4. Propose scientific papers.
b5. Compare different nutritional factors for each practice related to diagnosis, prevention and control of wild and migratory birds' diseases.

C- Professional and practical skills
By successful completion of the course, the student should be able to:
c1. Perform different conventional and advanced techniques in the field of wild animal nutrients calculation.
c2. Write and evaluate reports related to diagnosis of field cases of nutritional origin problems.
c3. Evaluate different available tools and methods regarding design of nutrition programs to obtain safe and high quality rations.

D- General and transferable skills
By successful completion of the course, the student should be able to:
d1- Properly use computer and internet skills.
d2- Work in teams and appreciate the importance of cooperation.
d3- Properly communicate with others.
d4- Enhance his/her effective presentation skills.

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 1h./week, Pract 2h./week)	**Introduction to animal nutrition Composition of the animal body and its food**	1,2	2	2	-
	Feedstuffs - Classification of feedstuffs	1	2	-	2
	- Technical nutrition terms	2,3	4	-	4
	Water and its metabolism	3	1	1	-
	Concentrates as energy sources & deleterious factors	4,5,6	6	-	6
	Carbohydrates and their metabolism	4	1	1	-
	Proteins and their metabolism	5	1	1	-
	Lipids and their metabolism.	6	1	1	-

Course specification of postgraduate

	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	5	5	-
	-Forage and roughage	10,11,12 ,13	8	-	8
	Vitamins **- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	4	4	-
	-Feed processing for wild animals	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	2	2	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19,20	3	3	-
	--Chemical analyses **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10
	Feeding standards and nutritional requirements for: **-maintenance** **-growth** **-fattening**	21,22	2	2	-
	-reproduction and lactation **-work production** **-wool production**	23,24	2	2	-
	Ration formulation methods	25	2	-	2
	Wild animals feeding **-Nutritional requirements** **-Common feedstuffs used** **-Feeding programs**	25,26,27 ,28,29, 30,31,32	8	8	-
	Ration formulation of wild animals	26,27,28 ,29,30	10	-	10
	Clinical nutrition of wild animals	33,34	2	2	-
	Feed contaminants **-Mycotoxins and its importance** **-Pesticides** **-Heavy metals**	31,32	4	-	4

Course specification of postgraduate

	-Feed manufacturing quality assurance and its monitoring	33,34	4		4
	Feed additives-	35,36	2	2	-
	Nutritional feed additives -Non Nutritional feed additives - Nanoparticles feed additives	35,36	4	-	4
	Total	36	108	36	72

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

- **Practical sections:**

- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.

- **Self learning**: Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a3**	**b1 to b5**		
Practical Exam			**c1 to c3**	
Oral Exam	**a1 to a3**	**b1 to b5**	**c1 to c3**	**d1 to d4**

6.2. Assessment schedules

Method	**Week(s)**
Written exam	**During December**
Practical exam	**During December**
Oral exam	**During December**
Student activities	**Along the year**

6.3. Weight of assessments

Assessment	Weight of assessment
Writing exam	**50%**

Course specification of postgraduate

Practical exam	**25%**
Oral exam	**25%**
Total	100%

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

5-Textbook of Human Nutrition and Animal Byproducts.

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.
2- Frappe, D. (1998): Equine Nutrition And Feeding .2nd ed.
3- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
4- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.
5- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition
-Veterinary Record
-Journal of Dairy Science

Websites:

www.google.com

Course specification of postgraduate

-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Course specification

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction to animal nutrition Composition of the animal body and its food**	1,2	**a1, a2**	**b1,b4,b5**	-	**d1, d2**
2	**Feedstuffs - Classification of feedstuffs**	1	-	-	**c1,c2**	**d1, d2**
3	**- Nutrition terms**	2,3	-	-	**c1,c2**	**d1, d2**
4	**Water and its metabolism**	3	**a1, a2**	**b1,b4,b5**	-	**d1, d2**
5	**Concentrates as energy sources & deleterious factors**	4,5,6	-	-	**c1, c2, c3**	**d1, d2**
6	**Carbohydrates and their metabolism**	4	**a1, a2**	**b1,b4,b5**	-	**d1, d2**
7	**Proteins and their metabolism**	5	**a1, a2**	**b1,b4,b5**	-	**d1, d2**
8	**Lipids and their metabolism.**	6	**a1, a2**	**b1,b4,b5**	-	**d1, d2**
9	**Plant protein sources & deleterious factors**	7,8,9	-	-	**c1, c3**	**d2, d3, d4**
10	**Minerals- macro & microelements - Introduction, distribution, functions - Deficiencies, supplements**	7,8,9,10, 11	**a1,a2,a3**	**b1,b4,b5**	-	**d3, d4**
11	**-Forage and roughage**	10,11,12,13	-	-	**c1, c2, c3**	**d1,d2,d3**
12	**Vitamins - Vitamin and animal health - Fat-soluble vitamins - Water-soluble vitamins**	12,13,14,15	**a1,a2,a3**	**b1,b4,b5**	-	**d3, d4**
13	**-Feed processing for wild animals**	14,15,16,17	-	-	**c1, c2, c3**	**d2, d4**
14	**Feed intake and factors affecting**	16,17	**a1, a2, a3**	**b1,b4,b5**	-	**d1, d2, d3**
15	**Feedstuffs analyses**	18,19,20	-	-	**c1, c2, c3**	**d2, d3, d4**

Course specification

	-Physical inspection					
16	**Digestion & absorption** **Digestibility of feeds**	18,19,20	**a1,a2,a3**	**b1,b2,b3,b4,b5**	-	**d1,d2**
17	**-Chemical analyses** **-Using standard feed analyses tables**	21,22,23,24,25	-	-	**c1, c2, c3**	**d1,d2,d3**
18	**Feeding standards and nutritional requirements for:** **-maintenance** **-growth** **-fattening**	21,22	**a1,a2,a3**	**b1,b2,b3,b4,b5**	-	**d1,d2,d3,d4**
19	**-reproduction and lactation** **-work production** **-wool production**	23,24	**a1,a2,a3**	**b1,b2,b3,b4,b5**	-	**d1,d2,d3,d4**
20	**Ration formulation methods**	25	-	-	**c1, c2, c3**	**d1,d2,d3,d4**
21	**Wild animals feeding** **-Nutritional requirements** **-Common feedstuffs used** **-Feeding programs**	25,26,27,28,29, 30,31,32	**a1,a2,a3**	**b1,b2,b3,b4,b5**	-	**d1,d2,d3,d4**
22	**Ration formulation of wild animals**	26,27,28,29,30	-	-	**c1, c2, c3**	**d1,d2,d3,d4**
23	**Clinical nutrition of wild animals**	33,34	**a1,a2,a3**	**b1,b2,b3,b4,b5**	-	**d1,d2,d3,d4**
24	**Feed contaminants** **-Mycotoxins and its importance** **-Pesticides** **Heavy metals**	31,32	-	-	**c1, c2, c3**	**d1,d2,d3,d4**
25	**-Feed manufacturing quality assurance and its monitoring**	33,34	-	-	**c1, c2, c3**	**d1,d2,d3,d4**
26	**Feed additives-**	35,36	**a1,a2,a3**	**b1,b2,b3,b4,b5**	-	**d1,d2**
27	**Nutritional feed additives** **-Non Nutritional feed additives** **- Nanoparticles feed additives**	35,36	-	-	**c1, c2, c3**	**d1,d2,d3**
Student activity		**Along the course**	**a1,a2,a3**	**b3,b4,b5**	**c2**	**d1, d2, d3, d4**

Beni Suef University
Faculty of Veterinary Medicine

Course specification

1-Basic information

Course Code:	Ph-54
Course title :	Lab Animals Nutrition
Program title:	Ph.D.
Contact hours/ week	Lecture:1 Practical: 2 Total: 3
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

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

1. Work continuously to develop his/her knowledge in the field of lab animal's nutrition and research.
2. Apply evaluating approaches to knowledge in lab animal nutritional requirements and other related sciences.
3. Integrate the acquired knowledge about lab animal feeding with the other related sciences and develop the relations in between.
4. Aware the current problems facing lab animal feeds and recent theories illustrating lab animal feeding systems.
5. Identify the practical problems facing lab animal's diet formulation and their solutions.
6. Master wide range of professional skills and techniques in lab animal nutritional disorders.
7. Develop new techniques and tools to be applied in lab for feed analysis.
8. Use the suitable technologies to serve of his/her professional practices and communication.
9. Make decisions depending on the available data in different professional and practical contexts.
10. Employ the available resources and develop them and search for new ones.
11. Show awareness of his/her role in community development and environmental conservation in the area of lab animal nutrition in the light global and regional variables.
12. Commit the moral and legal rules of a nutrition specialist.
13. Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

3- Intended learning outcomes of course (ILOs)

Beni Suef University
Faculty of Veterinary Medicine

Course specification

A- Knowledge and understanding:

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

a1. Define recent theories and knowledge in the field of lab animal's nutritional requirements.
a2. Underline principles of scientific research in lab animal nutrition.
a3. Identify the legal and moral rules in different practices applied in lab animal feeding and know safety measures applied when handling hazardous substance.
a4. Describe the principles and importance of high quality practices in development of lab animal feeding.
a5. Explain the mutual influence between different professional practices and their impacts on the environment.

B-Intellectual skills

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

b1. Evaluate knowledge related to fundamentals of feed analysis, nutritional requirements, feeding systems and high quality ration formulation.
b2. Operate solution field problems of lab animal nutrition using the available data.
b3. Construct research studies that add new knowledge to the area of lab animal nutritional requirements.
b4. Propose scientific projects to facilitate international papers publishing.
b5. Compare different nutritional factors for each practice related to lab animal feeding system.

C- Professional and practical skills

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

c1. Perform perfectly different conventional and advanced techniques in the field of lab animal feed analysis.
c2. Write and evaluate reports related to diagnosis of field cases of nutritional origin.
c3. Evaluate different available tools and methods regarding design of nutrition program to obtain safe and high quality rations.

D- General and transferable skills

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

d1. Communicate effectively with others using different means.

Course specification

d2. Properly use the information technologies for development of his/her professional abilities.
d3. Perform self development and continuous learning and transfer the acquired knowledge and experience to others.
d4. Assess others to learn how to detect his/her learning requirements.
d5. Use different advanced facilities for gaining knowledge and informations.

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lectur1h./week, Practical 2h./week)	**Introduction to lab animal nutrition Composition of the animal body and its food**	1,2	2	2	-
	Feedstuffs - Classification of feedstuffs	1	2	-	2
	- Technical nutrition terms	2,3	4	-	4
	Water and its metabolism	3	1	1	-
	Concentrates as energy sources & deleterious factors	4,5,6	6	-	6
	Carbohydrates and their metabolism	4	1	1	-
	Proteins and their metabolism	5	1	1	-
	Lipids and their metabolism.	6	1	1	-

Course specification

	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	5	5	-
	-Forage and roughage	10,11,12 ,13	8	-	8
	Vitamins and animal health **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	4	4	-
	-Feed processing for lab animals	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	2	2	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19,20	3	3	-
	-Chemical analyses **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10
	Feeding standards and nutritional requirements for: **-maintenance** **-growth and fattening**	21,22	2	2	-

Course specification

	-reproduction and lactation **-hair production**	23,24	2	2	-
	Ration formulation methods for lab animals	25	2	-	2
	Lab animals feeding- **-Nutritional requirements** **-Common feedstuffs used** **-Feeding programs**	25,26,27 ,28,29, 30,31,32	8	8	-
	Ration formulation of lab animals	26,27,28 ,29,30	10	-	10
	Clinical nutrition of lab animals	33,34	2	2	-
	Feed contaminants **-Mycotoxins** **-Pesticides** **- Heavy metals**	31,32	4	-	4
	-Feed quality assurance and its monitoring	33,34			
	Feed additives **Nutritional feed additives**	35,36	2	2	-
	-Non Nutritional feed additives **- Nanoparticles feed additives**	35,36	4	-	4
	Total	36	108	36	72

Course specification

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

- **Practical sections:**

- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.

- **Self learning**: Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a5**	**b1 to b5**		
Practical Exam			**c1 to c3**	
Oral Exam	**a1 to a5**	**b1 to b5**	**c1 to c3**	**d1 to d5**

6.2. Assessment schedules

Method	**Week(s)**
Written exam	**During December**
Practical exam	**During December**
Oral exam	**During December**

Course specification

Student activities	**Along the year**

6.3. Weight of assessments

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.

Course specification

2- National Research Council (1990): Nutrient Requirements of lab animals, 5th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Veterinary Record
-Websites:
www.google.com
-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Course specification

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction to lab animal nutrition Composition of the animal body and its food**	1,2	**a1, a3,a4**	**b1,b5**	-	**d1, d2, d3**
2	**Feedstuffs - Classification of feedstuffs**	1	-	-	**c1**	**d1, d2**
3	**- Nutrition terms**	2,3	-	-	**c1**	**d1, d2**
4	**Water and its metabolism**	3	**a1, a3,a4**	**b1,b5**	-	**d1, d2**
5	**Concentrates as energy sources & deleterious factors**	4,5,6	-	-	**c1, c3, c2**	**d1, d2**
6	**Carbohydrates and their metabolism**	4	-	**b1,b5**	-	**d1, d2**
7	**Proteins and their metabolism**	5	**a1, a3,a4**	**b1,b5**	-	**d3, d4, d5**
8	**Lipids and their metabolism.**	6	**a1, a2, a4,a5**	**b1,b5**	-	**d3, d4, d5**
9	**Plant protein sources & deleterious factors**	7,8,9	-	-	**c1,c2,c3**	**d3, d4, d5**
10	**Minerals- macro & microelements - Introduction, distribution, functions - Deficiencies, supplements**	7,8,9,10, 11	**a1, a2, a4,a5**	**b1,b2,b3,b4.b5**	-	**d3, d4, d5**
11	**-Forage and roughage**	10,11,12,13	-	-	**c1, c2,c3**	**d2, d4, d5**
12	**- Vitamin and animal health - Fat-soluble vitamins - Water-soluble vitamins**	12,13,14,15	**a1, a2, a4,a5**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
13	**-Feed processing for lab animals**	14,15,16,17	-	-	**c1, c2,c3**	**d2, d4, d5**
14	**Feed intake and factors affecting**	16,17	**a1, a2, a4,a5**	-	-	**d2, d4, d5**
15	**Feedstuffs analyses -Physical inspection**	18,19,20	-	-	**c1, c2,c3**	**d2, d4, d5**
16	**Digestion & absorption Digestibility of feeds**	18,19,20	**a1, a2, a4,a5**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**

Course specification

17	**-Chemical analyses -Using standard feed analyses tables**	21,22,23,24,25	-	-	**c1, c2,c3**	**d2, d4, d5**
18	**Feeding standards and nutritional requirements for: -maintenance -growth -fattening**	21,22	**a1, a2, a4,a5**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
19	**-reproduction and lactation -hair production**	23,24	**a1,a3, a2, a4,a5**	**b1,b2,b3,b4, b5**	-	**d3, d4, d5**
20	**Ration formulation methods**	25	-	-	**c1,c2, c3**	**d2, d4, d5**
21	**Lab animals feeding- -Nutritional requirements- -Common feedstuffs used -Feeding programs**	25,26,27,28,29, 30,31,32	**a1, a2,a3, a4,a5**	**b1,b2,b3,b4,b5**	-	**d2, d4, d5**
	Ration formulation of lab animals	26,27,28,29,30	-	-	**c1,c2,c3**	**d1,d2,d3**
	Clinical nutrition of lab animals	33,34	**a1, a2,a3, a4,a5**	**b1,b2,b3**	-	**d1,d2,d3**
	Feed contaminants -Mycotoxins -Pesticides -Heavy metals	31,32	-	-	**c1,c2,c3**	**d1,d2,d3**
	-Feed quality assurance and its monitoring	33,34	-	-	**c1,c2,c3**	**d1,d2,d3,d4,d5**
	Feed additives- Nutritional feed additives	35,36	**a1,a2,a4,a5**	**b1,b2,b3,b4,b5**	-	**d1,d2,d3,d4,d5**
	-Non Nutritional feed additives - Nanoparticles feed additives	35,36	-	-	**c1,c2,c3**	**d1,d2,d3,d4,d5**
Student activity		**Along the course**	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4,b5**	**c1,c2,c3**	**d1,d2,d3,d4,d5**

Beni-Suef University
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Course specification of postgraduate

1-Basic information

Course Code:	Ph-55
Course title :	Feed additives
Program title:	PhD.
Contact hours/ week	Lecture: 1 Practical: 2 Total: 3
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

By the end of this course, the student is able to:

1. Develop his/her knowledge in the field of feed additives evaluation and research work.
2. Apply knowledge in identification, inspection and examination of feed additives and their use in rations.
3. Integrate the acquired knowledge about feed additives values and problems in feed industry.
4. Identify the practical problems facing feed additives industry and their solutions.
5. Develop new techniques and tools to be applied in feed additives evaluation and use.
6. Use the suitable technologies to serve in professional practices and communications.
7. Make decisions depending on the available data in different professional and practical contexts.
8. Employ the available resources and develop them and search for new ones.
9. Aware of his/her role in community development and environmental conservation in the area of feed additives industry in the light of global and regional variables.
10. Commit legal rules of nutrition specialist.
11. Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1. Recall information and knowledge in the field of feed additives evaluation.
a2. Underline principles of scientific research in the field of feed additive industry.
a3. Identify the legal rules in different practices applied in analysis, inspection and feed additives evaluation.
a4. Recognize the principles and importance of high quality practices in development of feed additives industry.
a5. Explain the mutual influence between different professional practices and their impacts on the environment.

b-Intellectual skills

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

Course specification of postgraduate

b1. Evaluate the knowledge related to feed additives and interpret it to solve the related problems.
b2. Operate solution field problems of feed industry affecting animal nutrition and economics using the available data.
b3. Create research studies that add new knowledge to the area of feed additives evaluation.
B4. Compare different risk factors for each practice related to chemical analysis and feed additives manufacturing.

C- Professional and practical skills

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

c1. Perform different conventional and advanced techniques in the field of feed and additives analysis.
c2. Write and evaluate reports related to field cases of feed additives industry and safety.
c3. Write and evaluate scientific papers related to feed additives using in feeds.
c4. Evaluate different available tools and methods regarding feed additives evaluation and HACCP in their manufacturing.

d- General and transferable skills

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

d1. Communicate effectively using different means.
d2. Properly use the information technologies for development of his/her professional abilities.
d3. Perform self development and continuous learning and transfer the acquired knowledge and experience to others.
d4. Assess how to detect his/her learning requirements.
d5. Use different facilities for gaining knowledge and information about feed additives.

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lecture	Practical
(Lec. 1h./week, Pract 2h./week)	**Introduction in animal nutrition and feed additives**	1,2	2	2	-
	Feedstuffs **- Classification of feedstuffs**	1	2	-	2
	- Technical nutrition terms	2,3	4	-	4
	Water and its metabolism	3	1	1	-
	Concentrates as energy sources and deleterious factors	4,5,6	6	-	6

Course specification of postgraduate

	Carbohydrates and their metabolism	4	1	1	-
	Proteins and their metabolism	5	1	1	-
	Lipids and their metabolism.	6	1	1	-
	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10 , 11	5	5	-
	-Forage and roughage	10,11, 12,13	8	-	8
	- Vitamin and animal health **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13, 14,15	4	4	-
	-Feed processing and manufacture	14,15,1 6,17	8	-	8
	Feed intake and factors affecting	16,17	2	2	-
	Feedstuffs analyses **-Physical inspection**	18,19, 20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19, 20	3	3	-
	-Chemical analyses **-Using standard feed analyses tables**	21,22, 23,24, 25	10	-	10
	Feeding standards and nutritional requirements	21,22, 23,24	4	4	-
	Ration formulation methods and feed additives inclusion	25	2	-	2
	Feed additive legislation **-Feed additives safety**	**25,26, 27,28,**	4	4	-
	-Feed additives manufacturing **-Veterinary medicinal products**	**29, 30,31, 32**	4	4	-
	-Precautions for feed additives users **-Evaluating feed additives**	26,27, 28,	6	-	6

Course specification of postgraduate

	- Evaluating feed additives at the farm **-Evaluating feed additives at the industry**	29, 30	4		4
	Feed additives commonly used for ruminants and nonruminants	31,32	4	-	4
	Feed manufacturing quality assurance and its monitoring	33,34	2	2	
	Feed additives classification **Functional properties of feed additives**	33,34 35,36	4	-	4
	-Nutritional feed additives **-Non Nutritional feed additives** **- Nanoparticles feed additives**	35,36	4	-	4
	Total	36	108	36	72

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

- **Practical sections:**

- Identification of feed additives and their evaluation.
- Laboratory feed additives inspection and chemical analysis.
- Requirements calculation and ration formulation using feed additives.

- **Self learning**: Electronic learning, Seminars, scientific search on related websites, b international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a5**	**b1 to b5**		
Practical Exam			**c1 to c4**	
Oral Exam	**a1 to a5**	**b1 to b5**	**c1 to c4**	**d1 to d5**

6.2. Assessment schedules

Method	**Week(s)**
Written exam	**During December**
Practical exam	**During December**

Course specification of postgraduate

Oral exam	**During December**
Student activities	**Along the year**

6.3. Weight of assessments

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

5- Text book of Human Nutrition and Animal Byproducts.
6- of feed additives and human health

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.
2- Frappe, D. (1998): Equine Nutrition And Feeding .2nd ed.
3- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
4- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.
5- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.
6- National Research Council (1994): Nutrient Requirements of poultry, 5th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition

Course specification of postgraduate

-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition
-Veterinary Record
-Journal of Dairy Science

Websites:

www.google.com
-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Course specification

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction in animal nutrition and feed additives**	1,2	**a1,a3**	**b1,b2,b3,b5**	-	**d1, d2**
2	**Feedstuffs** **- Classification of feedstuffs**	1	-	**b1,b2,b3**	**c1,c2**	**d1, d2**
3	**- Technical nutrition terms**	2,3	-	**b1,b2,b3**	**c2,c3**	**d1, d2**
4	**Water and its metabolism**	3	**a1, a3**	**b1,b2,b3**	-	**d1, d2**
5	**Concentrates as energy sources and deleterious factors**	4,5,6	-	**b1,b2,b3**	-	**d1, d2**
6	**Carbohydrates and their metabolism**	4	**a1, a3**	**b1,b2,b3**	**c1,c2,c3**	**d1, d2**
7	**Proteins and their metabolism**	5	**a1, a3**	**b1,b2,b3**	-	**d1, d2**
8	**Lipids and their metabolism.**	6	**a1, a3**	**b1,b2,b3**	-	**d1, d2**
9	**Plant protein sources & deleterious factors**	7,8,9	-	**b1,b2,b3**	**c1,c2,c3**	**d1, d2, d3**
10	**Minerals- macro & microelements** **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2, d3**
11	**-Forage and roughage**	10,11,12,13	-	**b1,b2,b3**	**c1,c2,c3**	**d1, d2**
12	**- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14,15	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2**
13	**-Feed processing and manufacture**	14,15,16,17	-	**b1,b2,b3**	**c1,c4**	**d1, d2**
14	**Feed intake and factors affecting**	16,17	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2**
15	**Feedstuffs analyses** **-Physical inspection**	18,19,20	-	**b1,b2,b3**	**c1,c2,c4**	**d1, d2**
16	**Digestion & absorption**	18,19,20	**a1, a2, a3**	**b2,b3,b4,b5**	-	**d3, d4, d5**

Course specification

	Digestibility of feeds					
17	**-Chemical analyses -Using standard feed analyses tables**	21,22,23,24,25	-	**b3,b4**	**c1,c4**	**d3, d4, d5**
18	**Feeding standards and nutritional requirements**	21,22,23,24	**a1, a2, a3**	**b5**	-	**d3, d4, d5**
19	**Ration formulation methods and feed additives inclusion**	25	**a3**	**b3,b4**	**c2, c3,c4**	**d3, d4, d5**
20	**Feed additive legislation -Feed additives safety**	**25,26,27,28,29, 30,31,32**	**a2, a3,a4,a5**	**b1,b2,b4**		**d2, d4, d5**
21	**-Feed additives manufacturing -Veterinary medicinal products**	26,27,28,	-	**b1**	**c2, c3,c4**	**d2, d4, d5**
	-Precautions for feed additives users -Evaluating feed additives	29,30	-	**b1**	**c2, c3,c4**	**d2, d4, d5**
22	**- Evaluating feed additives at the farm -Evaluating feed additives at the industry**	31,32	**a2, a3,a4,a5**	**b1**	-	**d2, d4, d5**
23	**Feed additives commonly used for ruminants and nonruminants**	33,34	-	**b1,b2**	**c4**	**d2, d4, d5**
24	**Feed manufacturing quality assurance and its monitoring**	33,34	**a2, a3,a4,a5**	**b1**	**c1, c2, c3**	**d2, d4, d5**
25	**Feed additives classification Functional properties of feed additives**	35,36	-	**b1,b2,b4**	**c1, c2, c4**	**d2, d4, d5**
	-Nutritional feed additives -Non Nutritional feed additives - Nanoparticles feed additives	35,36	**a2, a3,a4,a5**	**b1**	**c1, c2, c3**	**d2, d4, d5**
Student activity		**36**	**a1, a2, a3, a4,a5**	**b1, b2, b3**	**c3**	**d1, d2, d3, d4,d5**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-56
Course title :	Feedstuffs Analysis
Program title:	PhD.
Contact hours/ week	Lecture: 2 Practical: 2 Total: 4
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

By the end of this course, the student is able to:

1. Work continuously to develop his/her knowledge in the field of feedstuffs evaluation.
2. Apply knowledge in identification, inspection and examination of feedstuffs and their use in rations.
3. Integrate the acquired knowledge about feedstuffs values in tables with the other related sciences and develop the relations in between.
4. Identify the practical problems facing feedstuffs industry and their solutions.
5. Develop new techniques and tools to be applied in feedstuffs evaluation and use.
6. Make decisions depending on the available data in different professional and practical contexts in relation to using feedstuffs.
7. Employ the available resources and develop them and search for new unconventional ones.
8. Aware of his/her role in community development and environmental conservation in the area of feed industry in the light of global and regional variables.
9. Commit the legal rules of nutrition specialist and communicate with a team.
10. Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

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. Define recent theories and knowledge in the field of feedstuffs evaluation.
a.2. Outline principles of scientific research in the field of feedstuffs industry.
a.3. Identify the legal rules applied in chemical analysis, inspection and feedstuff evaluation.
a.4. Understand the principles of high quality practices in development of feedstuffs industry.
a.5. Recognize the mutual influence between different professional practices and their impacts on the environment.

b-Intellectual skills

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

b1. Evaluate knowledge related to feedstuffs and interpret it to solve the related problems.
b2. Create solution to field problems of feed industry affecting animal nutrition and economics using the available data.
b3. Conduct research studies that add new knowledge to the area of feedstuffs evaluation.
b4. Demonstrate different risk factors for each practice related to chemical analysis and

Course specification of postgraduate

feedstuffs manufacturing.
b5. Plan for performance enhancement in feedstuffs classification and nomenclature.
b6. Set up decisions using the available information in different practices related to feedstuffs tables.

C- Professional and practical skills

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

c1. Perform different modern and advanced techniques in the field of feedstuffs analysis.
c2. Write and evaluate reports related to field cases of feedstuffs industry.
C3. Evaluate different available tools and methods regarding feedstuffs analysis technique and its interpretation.
C4. Write and create scientific papers in the unconventional feedstuffs aspects.

d- General and transferable skills

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

d1. Communicate effectively using different means.
d2. Use the information technologies for development of his/her professional abilities.
d3. Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.
d4. Assess how to detect his/her learning requirements.
d5. Create rules and indicators for evaluation of the performance of others.
d6. Use different facilities for gaining knowledge and information.
d7. Learn how to work effectively as part of a team and properly manage the time.
d8. Manage scientific meetings and conferences.

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 2h./week, Pract 2h./week)	**Introduction to animal nutrition and feedstuffs** **Composition of the animal body and its food**	1,2	6	6	-
	Feedstuffs **- Classification of feedstuffs**	1	2	-	2
	- Technical Nutrition terms	2,3	4	-	4
	Water and its metabolism	3	2	2	-
	Concentrates as energy sources and deleterious factors	4,5,6	6	-	6

Course specification of postgraduate

	Carbohydrates	4	2	2	-
	Proteins	5	2	2	-
	Lipids	6	2	2	-
	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	10	10	-
	-Forage and roughage	10,11,12 ,13	8	-	8
	- Vitamin and animal health **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	8	8	-
	-Feedstuff processing	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	4	4	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feedstuffs**	18,19,20	6	6	-
	-Microscopical examination **-Chemical analyses** **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10
	Feeding standards and nutritional requirements	21,22	4	4	-
	- Animal feed safety and feedstuffs manufacturing	25,26	4	-	4
	Feed contaminants and its sources	27,28	4	4	-
	Unconventional feedstuffs **- Source and evaluation**	29,30	4	4	2
	Unconventional feedstuffs of plant origin	31,32,33	6	6	

Course specification of postgraduate

	Unconventional feedstuffs animal origin	,34,35	4	4	-
	- Feed additives Nutritional feed additives	28,29,30	4	-	4
	-Non Nutritional feed additives	36	2	2	-
	Feed additives commonly used	31,32	**4**	-	4
	Detection of feed contaminants -Mycotoxins -Pesticides --Heavy metals	33,34	4	-	4
	-Feed analysis quality assurance and its monitoring (ISO 1725)	35,36	4	-	4
	Total		144	72	72

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

- **Practical sections:**

- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.

- **Self learning**: Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a5**	**b1 to b6**		
Practical Exam			**c1 to c4**	
Oral Exam	**a1 to a5**	**b1 to b6**	**c1 to c4**	**d1 to d8**

6.2. Assessment schedules

Method	**Week(s)**
Written exam	**During December**

Course specification of postgraduate

Practical exam	**During December**
Oral exam	**During December**
Student activities	**Along the year**

6.3. Weight of assessments

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.
6- Official Methods of Analysis. 1990. Animal Feed: (AOAC) Association of Official Analytical Chemists, 15th edition.
Plants: Preparation of Sample. (922.02, 930.15)

7.3. Recommended texts

1- Central Lab for Food & Feed (CLFF), Ministry of Agriculture, Agricultural Research Center, Technical Bulletin Nr.1, 2001.
2- Crampton, E.W., L.E. Lioyd. 1959. Fundamentals of Animal Nutrition. United States of America. W.H. Freeman and Company.
3- Ensminger, M.E., and C.G. Olentine. 1978. Feeds & Nutrition – Complete, 1st ed. U.S.A. The Ensminger Publishing Company.
4- Morrison, F.B. 1959. Feeds and Feeding, 22nd ed., Clinton, Iowa. Morrison Publishing Company.
5-Nahm, K.H. 1989. The complete Agricultural Lab Manual. Taegu University

Course specification of postgraduate

Press.
6- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
7- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.
8- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.
9- National Research Council (NRC). 1994. Nutrient Requirements of Poultry. Washington, D.C.: National Academy Press.

Journals:
Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition
-Veterinary Record
-Journal of Dairy Science

Websites:
www.google.com
-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Course specification

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction to animal nutrition and feedstuffs Composition of the animal body and its food**	1,2	**a1, a2**	**b1,b2,b3,b6**	-	**d1, d2,d3**
2	**Feedstuffs - Classification of feedstuffs**	1	-	-	**c1,c2**	**d1, d2.d4,d6**
3	**- Technical Nutrition terms**	2,3	-	-	**c1,c2**	**d1, d2**
4	**Water and its metabolism**	3	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2**
5	**Concentrates as energy sources and deleterious factors**	4,5,6	-	-	-	**d1, d2**
6	**Carbohydrates**	4	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2**
7	**Proteins**	5	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2**
8	**Lipids**	6	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2**
9	**Plant protein sources & deleterious factors**	7,8,9	-	-	**c1,c2,c4**	**d1, d2, d3**
10	**Minerals- macro & microelements - Introduction, distribution, functions - Deficiencies, supplements**	7,8,9,10, 11	**a1, a2, a3**	**b1,b2,b4,b5,b6**	-	**d1, d2, d3**
11	**-Forage and roughage**	10,11,12,13	-	-	**c1,c2,c4-**	**d1, d2**
12	**- Vitamin and animal health - Fat-soluble vitamins - Water-soluble vitamins**	12,13,14,15	**a1, a2, a3**	**b1,b2,b4,b5,b6**	-	**d1, d2**
13	**-Feedstuff processing**	14,15,16,17	-	-	**c1,c2,c4**	**d1, d2**
14	**Feed intake and factors affecting**	16,17	**a1, a2, a3**	**b1,b2,b4,b5,b6**	-	**d1, d2**
15	**Feedstuffs analyses -Physical inspection**	18,19,20	-	-	**c1,c2,c4**	**d1, d2**
16	**Digestion & absorption**	18,19,20	**a1, a4,a5**	**b2,b3,b4,b5,b6**	-	**d3, d4, d5,d7,d8**

Course specification

	Digestibility of feedstuffs					
17	**-Microscopical examination -Chemical analyses -Using standard feed analyses tables**	21,22,23,24,25	-	-	**c1,c2,c4**	**d3, d4, d5,d7,d8**
18	**Feeding standards and nutritional requirements**	21,22	**a4, a5**	**b4,b5,b6**	-	**d3, d4, d5**
19	**- Animal feed safety and feedstuffs manufacturing**	25,26	**a3,a4,a5**	**b3,b4**	-	**d3, d4, d5,d7,d8**
20	**Feed contaminants and its sources**	27,28	**a2, a4,a5**	**b1,b2,b4**	-	**d2, d4, d5,d7**
21	**Unconventional feedstuffs - Source and evaluation**	29,30	**a1, a2, a3,a5**	**b1,b2,b4,b5,b6**	-	**d2, d4, d5,d6**
	Unconventional feedstuffs of plant origin	31,32,33	**a3,a4, a5**	**b1,b2,b4,b5,b6**	-	**d2, d4, d5**
22	**Unconventional feedstuffs animal origin**	,34,35	**a3,a4, a5**	**b1,b2,b4,b5,b6**	-	**d2, d4, d5**
	- Feed additives Nutritional feed additives	28,29,30	-	-	**c1, c2, c3,c4**	**d2, d4, d5**
23	**Feed additives commonly used**	36	**a3,a4**	**b1,b2,b4,b5,b6**	-	**d2, d4, d5,d8**
24	**-Non Nutritional feed additives**	31,32	-	-	**c1, c2, c3,c4**	**d2, d4, d5**
25	**Detection of feed contaminants -Mycotoxins -Pesticides --Heavy metals**	33,34	-	-	**c1, c2, c3,c4**	**d2, d4, d5**
26	**-Feed analysis quality assurance and its monitoring (ISO 1725)**	35,36	-	-	**c1, c2, c3,c4**	**d2, d4, d5,d7,d8**
	Student activity	**Along the course**	**a1, a2, a3, a4,a5**	**b1,b2,b3,b4,b5,b6**	**c3, c4**	**d1, d2, d3, d4,d5.d6.d7,d8**

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

1-Basic information

Course Code:	Ph-57
Course title :	Quality Control of feeds and its manufacturing
Program title:	PhD.
Contact hours/ week	Lecture: 2 Practical: 2 Total: 4
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

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

1. Work continuously to develop his/her knowledge in the field of feeds quality evaluation.
2. Apply evaluating approaches to knowledge in identification, inspection and examination of feedstuffs quality and their use in rations.
3. Integrate the acquired knowledge about feedstuffs values in tables.
4. Aware of the current problems in feed manufacturing and recent theories illustrating prevention and control of these problems.
5. Identify the practical problems facing feeds industry, HACCP system and their solutions.
6. Develop new techniques and tools to be applied in feeds evaluation and quality assurance.
7. Properly use the suitable technologies to serve of his/her professional practices.
8. Make decisions depending on the available data in different professional and practical contexts.
9. Properly employ the available resources and develop them and search for new ones.
10. Show awareness of his/her role in community development and environmental conservation in the area of feed industry in the light of global and regional variables.
11. Commit the moral and legal rules of nutrition specialist.
12. Perform self-development and continuous learning and transfer the acquired knowledge and experience in quality control of feeds and its manufacturing to others.

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

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

a1. Define recent theories and knowledge in the field of feed quality evaluation and related sciences.

a2. Underline principles and morals of scientific research in the field of feed industry.

a3. Identify the legal and moral rules in different practices applied in analysis, inspection and feed evaluation.

a4- Recognize the principles and importance of high quality practices in development of feed industry.

Course specification of postgraduate

a5. Explain the mutual influence between different professional practices and their impacts on the environment.

b-Intellectual skills

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

b1. Evaluate knowledge related to feed quality control and interpret it to solve the related problems.
b2. Create solutions to field problems of feed quality assessment affecting animal nutrition and economics using the available data.
b3. Conduct research studies that add new knowledge to the area of feed quality evaluation.
b4. Illustrate different risk factors for each practice related to chemical analysis and feed manufacturing.

C- Professional and practical skills

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

c1. Perfectly perform different recent and advanced techniques in the field of feed analysis for evaluation.
c2. Write and evaluate reports and papers related to field cases of feed industry.
c3. Apply the steps of HACCP system in feed industry and manufacturing.
c4. Evaluate different available tools and methods regarding feed quality assessment and assurance.

d- General and transferable skills

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

d1- Work in a team and appreciate cooperation and communication with others.
d2- Enhance his/her effective using internet and presentation skills.
d.3- Use the information technologies for development of his/her professional abilities.
d.4. Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.
d.5. Assess how to detect his/her learning requirements.
d.6. Create rules and indicators for evaluation of the performance of others.
d.7. Use different facilities for gaining knowledge and information.
d.8-Learn how to work effectively as part of a team and properly manage the time.
d.9-Manage scientific meetings and conferences with ability to lead a team.

4-Topics and contents

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 2h./week, Pract 2h./week)	**Introduction to animal nutrition and feed quality and feed industry**	1,2	6	6	-
	Feedstuffs **- Classification of feedstuffs**	1	2	-	2
	- Technical Nutrition terms	2,3	4	-	4
	Feed quality assessment	3	2	2	-
	Concentrates as energy sources and deleterious factors	4,5,6	6	-	6
	Carbohydrates as component of feed	4	2	2	-
	Proteins as component of feed	5	2	2	-
	Lipids as component of feed	6	2	2	-
	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	10	10	-
	-Forage and roughage	10,11,12 ,13	8	-	8
	- Vitamin and animal health **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	8	8	-
	-Animal feed processing	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	4	4	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feedstuffs**	18,19,20	6	6	-
	-Microscopical examination **-Chemical analyses** **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10

Course specification of postgraduate

	Feeding standards and nutritional requirements	21,22	4	4	-
	- Animal feed safety and manufacturing	25,26	4	-	4
	Feed contaminants and its sources	27,28	4	4	-
	Unconventional feedstuffs **- Source and evaluation**	29,30	4	4	2
	Unconventional feedstuffs of plant origin	31,32,33	6	6	-
	Unconventional feedstuffs animal origin	,34,35	4	4	-
	- Feed additives **Nutritional feed additives**	28,29,30	4	-	4
	-Non Nutritional feed additives	36	2	2	-
	Feed additives commonly used	31,32	**4**	**-**	4
	Detection of feed contaminants (HACCP) **-Mycotoxins** **-Pesticides** **--Heavy metals**	33,34	4	-	4
	-Feed quality assurance and its monitoring (ISO 1725)	35,36	4	-	4
	Total	36	144	72	72

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

- **Practical sections:**

- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.

- **Self learning**: Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

Course specification of postgraduate

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1 to a5	b1 to b4		
Practical Exam			c1 to c4	
Oral Exam	a1 to a5	b1 to b4	c1 to c4	d1 to d9

6.2. Assessment schedules

Method	Week(s)
Written exam	During December
Practical exam	During December
Oral exam	During December
Student activities	Along the year

6.3. Weight of assessments

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

5-Textbook of Human Nutrition and Animal Byproducts.

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.
2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and

Course specification of postgraduate

Feeding, 4th edition.
6- Official Methods of Analysis. 1990. Animal Feed: (AOAC) Association of Official Analytical Chemists, 15th edition.

7.3. Recommended texts

1- Central Lab for Food & Feed (CLFF), Ministry of Agriculture, Agricultural Research Center, Technical Bulletin Nr.1, 2001.
2- Crampton, E.W., L.E. Lioyd. 1959. Fundamentals of Animal Nutrition. United States of America. W.H. Freeman and Company.
3- Ensminger, M.E., and C.G. Olentine. 1978. Feeds & Nutrition – Complete, 1st ed. U.S.A. The Ensminger Publishing Company.
4- Morrison, F.B. 1959. Feeds and Feeding, 22nd ed., Clinton, Iowa. Morrison Publishing Company.
5-Nahm, K.H. 1989. The complete Agricultural Lab Manual. Taegu University Press.
6- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
7- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.
8- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.
9- National Research Council (NRC). 1994. Nutrient Requirements of Poultry. Washington, D.C.: National Academy Press.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition
-Veterinary Record
-Journal of Dairy Science

Websites:

www.google.com
-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Beni-Suef University
Faculty of Veterinary Medicine

Course specification of postgraduate

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Course specification

Topics		Wk	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction to animal nutrition and feed quality and feed industry**	1,2	**a1, a2**	**b1,b2**	-	**d1, d2,d3**
2	**Feedstuffs** **- Classification of feedstuffs**	1	-	-	**c1,c2**	**d1, d2.d4**
3	**- Technical Nutrition terms**	2,3	-	-	**c1,c2**	**d1, d2,d5**
4	**Feed quality assessment**	3	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2,d6**
5	**Concentrates as energy sources and deleterious factors**	4,5,6	-	-	-	**d1, d2,d7**
6	**Carbohydrates as component of feed**	4	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2,d8**
7	**Proteins as component of feed**	5	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2.d6**
8	**Lipids as component of feed**	6	**a1, a2, a3**	**b1,b2,b3**	-	**d1, d2,d8**
9	**Plant protein sources & deleterious factors**	7,8,9	-	-	**c1,c2,c4**	**d1, d2, d3**
10	**Minerals- macro & microelements** **- Introduction, distribution, functions** **- Deficiencies, supplements**	7,8,9,10, 11	**a1, a2, a3**	**b1,b2,b4**	-	**d1, d2, d3**
11	**-Forage and roughage**	10,11,12,13	-	-	**c1,c2,c4-**	**d1, d2,d8**
12	**- Vitamin and animal health** **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14,15	**a1, a2, a3**	**b1,b2,b4,**	-	**d1, d2,d7**
13	**-Animal feed processing**	14,15,16,17	-	-	**c1,c2,c4**	**d1, d2,d5**
14	**Feed intake and factors affecting**	16,17	**a1, a2, a3**	**b1,b2,b4**	-	**d1, d2,d4**
15	**Feedstuffs analyses** **-Physical inspection**	18,19,20	-	-	**c1,c2,c4**	**d1, d2,d6**

Course specification

16	**Digestion & absorption Digestibility of feedstuffs**	18,19,20	**a1, a4,a5**	**b2,b3,b4**	**-**	**d3, d4,d8**
17	**-Microscopical examination -Chemical analyses -Using standard feed analyses tables**	21,22,23,24,25	-	-	**c1,c2,c4**	**d3, d4, d5,d7,d8**
18	**Feeding standards and nutritional requirements**	21,22	**a4, a5**	**b4,b5,b6**	-	**d3, d4, d5**
19	**- Animal feed safety and manufacturing**	25,26	**a3,a4,a5**	**b3,b4**	-	**d3, d4, d5,d7,d8**
20	**Feed contaminants and its sources**	27,28	**a2, a4,a5**	**b1,b2,b4**	**-**	**d2, d4, d5,d7**
21	**Unconventional feedstuffs - Source and evaluation**	29,30	**a1, a2, a3,a5**	**b1,b2,b4,b5,b6**	**-**	**d2, d4, d5,d6**
22	**Unconventional feedstuffs of plant origin**	31,32,33	**a3,a4, a5**	**b1,b2,b4,b5,b6**	**-**	**d2, d4, d5**
23	**Unconventional feedstuffs animal origin**	,34,35	**a3,a4, a5**	**b1,b2,b4,b5,b6**	**-**	**d2, d4, d5**
24	**- Feed additives Nutritional feed additives**	28,29,30	-	-	**c1, c2, c3,c4**	**d2, d4, d5**
25	**-Non Nutritional feed additives**	36	**a3,a4**	**b1,b2,b4,b5,b6**	-	**d2, d4, d5,d8**
26	**Feed additives commonly used**	31,32	-	-	**c1, c2, c3,c4**	**d2, d4, d5,d9**
	Detection of feed contaminants (HACCP) -Mycotoxins -Pesticides --Heavy metals	33,34	-	-	**c1, c2, c3,c4**	**d2, d4, d5,d8**
27	**-Feed quality assurance and its monitoring (ISO 1725)**	35,36	-	-	**c1, c2, c3,c4**	**d2, d4, d5,d7,d9**
Student activity		**Along the course**	**a1, a2, a3, a4,a5**	**b1,b2,b3,b4**	**c3, c4**	**d1, d2, d3, d9**

Beni Suef University
Faculty of Veterinary Medicine

Course specification

01-Basic information

Course Code:	M-58
Course title :	**Clinical Nutrition**
Program title:	Master
Contact hours/ week	Lecture: 2 Practical: 2 Total: 4
Approval Date	9/9/2018

2-Professional information

Overall aims of course:

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

1-Apply the analytical and evaluating approaches to knowledge in diagnosis, prevention and control of nutritional disorders of animal and other related sciences.
2-Integrate the acquired knowledge about clinical nutritional requirements with the other related sciences and develop the relations in between.
3-Intensively aware of the current problems facing animal clinical nutrition and recent theories illustrating NRC tables, prevention and control of nutritional problems.
4-Identify the practical problems facing animal clinical nutrition and their solutions.
5-Develop new techniques and tools to be applied in ration formulation and feed industry.
6-Properly use the suitable technologies to serve his/her professional practices.
7-Effectively communicate and lead team works.
8-Make decisions depending on the available data in different professional and practical contexts.
9-Show awareness of his/her role in community development and environmental conservation in the area of animal nutrition in the light of global and regional variables.
10-Perform self-development and continuous learning and transfer the acquired knowledge and experience to others.

3- Intended learning outcomes of course (ILOs)

Course specification

a- Knowledge and understanding:

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

a1. Define basics of animal clinical nutrition, feed evaluation and quality control.
a2. Underline principles and morals of scientific research in the field of animal clinical nutrition.
a3. Identify technical nutritional terms, clinical situations and related parameters.
a4. Describe the principles and importance of high quality practices in development of animal feed industry.
a5. Recognize the mutual influence between different professional practices and their impacts on the environment.
a6. Identify the principals of application of different quality management systems in clinical nutrition sectors and practices.

b-Intellectual skills

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

b1. Analyze and evaluate knowledge related to animal clinical nutrition and interpret it to solve the related problems.
b2. Create solution field problems affecting animal clinical nutrition and economics using the available data.
b3. Conduct research studies that add new knowledge to the area of animal clinical nutrition.
b4. Demonstrate different risk factors for each practice related to diagnosis, prevention and control of nutritional deficiencies of animal.

C- Professional and practical skills

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

c1. Perfectly perform different conventional and advanced techniques in the field of feeding system and ration formulation to prevent nutritional diseases.
c2. Write and evaluate reports related to animal nutrition and feeding.
c3. Write and evaluate scientific papers.

d- General and transferable skills

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

d1-Properly use computer and internet skills.
d2- Work in teams and appreciate the importance of cooperation.
d3-Properly communicate with others.
d4- Enhance his/her effective presentation skills.

Course specification

4-Topics and contents

Course	Topic	Weeks	No. of hours	Lectures	Practical
(Lec. 2h./week, Pract 2h./week)	**Introduction to animal nutrition and clinical nutrition Composition of the animal body and its food**	1,2	6	6	-
	Feedstuffs - Classification of feedstuffs	1	2	-	2
	- Technical nutrition terms	2,3	4	-	4
	Water and its metabolism	3	2	2	-
	Concentrates as energy sources & deleterious factors	4,5,6	6	-	6
	Carbohydrates and their metabolism	4	2	2	-
	Proteins and their metabolism	5	2	2	-
	Lipids and their metabolism.	6	2	2	-
	Plant protein sources & deleterious factors	7,8,9	6	-	6
	Minerals- macro & microelements - Introduction, distribution, functions - Deficiencies, supplements	7,8,9,10, 11	10	10	-

Course specification

	-Forage and roughage	10,11,12 ,13	8	-	8
	Vitamin and animal health **- Fat-soluble vitamins** **- Water-soluble vitamins**	12,13,14 ,15	8	8	-
	-Feed processing and manufacture	14,15,16 ,17	8	-	8
	Feed intake and factors affecting	16,17	4	4	-
	Feedstuffs analyses **-Physical inspection**	18,19,20	6	-	6
	Digestion & absorption **Digestibility of feeds**	18,19,20	6	6	-
	-Chemical analyses **-Using standard feed analyses tables**	21,22,23 ,24,25	10	-	10
	Feeding standards and nutritional requirements for: **-maintenance** **-growth** **-fattening**	21,22	4	4	-
	-reproduction and lactation **-work production** **-wool production**	23,24	6	6	-
	Ration formulation methods	25	2	-	2

Course specification

	Feeding nonruminants and nutritional diseases	26	2	2	-
	Clinical nutrition in nonruminants	27	2	-	2
	Feeding farm animals **-Feeding dairy cows & calves and nutritional diseases** **-Feeding buffalos and nutritional diseases**	26,27,28	6	6	-
	Ration formulation of dairy cattle	28,29	6	-	6
	-Feeding sheep & goat and nutritional diseases **-Feeding camel**	29,30,31	6	6	-
	Ration formulation of sheep and goat	30,31	4	-	4
	-Feeding equine and nutritional diseases	32,33	4	4	-
	Ration formulation of equine	32	2	-	2
	-Feeding poultry and nutritional diseases	34, 35	4	4	-
	Ration formulation for poultry	33,34	4	-	4
	Feed additives-	36	2	2	-
	Environmental factors inducing feed deterioration **-Mycotoxins and its importance** **-Pesticides** **-Heavy metals**	35	2	-	2

Course specification

	-Feed manufacturing quality assurance and its monitoring	36	2	-	2
	Total		144	72	72

5-Teaching and learning methods

- **Lectures:**

Depends on the sharing efforts of the students and supported with macromedia and multimedia aids.

- **Practical sections:**

- Identification of feedstuffs and their evaluation.
- Laboratory feed inspection and chemical analysis.
- Requirements calculation and ration formulation.

- **Self learning**: Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library.
- **Essays and reviews**
- **Discussion groups**

6-Student assessment

6.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	**I.S**	**P&P.S**	**G.S**
Written Exam	**a1 to a6**	**b1 to b4**		
Practical Exam			**c1 to c3**	
Oral Exam	**a1 to a5**	**b1 to b4**	**c1 to c3**	**d1 to d4**

6.2. Assessment schedules

Course specification

Method	Week(s)
Written exam	**During December**
Practical exam	**During December**
Oral exam	**During December**
Student activities	**Along the year**

6.3. Weight of assessments

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

7- List of references

7.1. Notes and books

1-Textbook of Animal and Poultry Nutrition – part 1

2-Practical of feedstuffs and ration formulation – part 1

3-Textbook of Animal and Poultry Nutrition – part 2

4-Practical of feedstuffs and ration formulation – part 2

5-Textbook of Human Nutrition and Animal Byproducts.

7.2. Essential books:

1-Cheeke , P.R.(1991): Applied Animal Nutrition, Feeds and Feeding.

Course specification

2- Church, D .C. (1991): Livestock Feeds and Feeding 3rd edition
3-Gillespie, J.R. (1987): Animal Nutrition and Feeding.
4-McDonald, P., R.A .Edwards and J.F.D. Greenhalgh (1987}, Animal Nutrition, 4th edition.
5-Pond, W. G., D.C. Church, and K .R. Pond (1995): Basic Animal Nutrition and Feeding, 4th edition.

7.3. Recommended texts

1-Cheeke, P.R. (1987): Rabbit Feeding and Nutrition.
2- Frappe, D. (1998): Equine Nutrition And Feeding .2nd ed.
3- National Research Council (1985): Nutrient Requirements of Sheep, 6th rev. ed. Washington, D.C.: National Academy of Sciences.
4- National Research Council (1988): Nutrient Requirements of Dairy Cattle, 6th rev .ed. Washington, D.C.: National Academy of Sciences.
5- National Research Council (1996): Nutrient Requirements of Beef cattle, 7th rev. ed. Washington, D.C.: National Academy of Sciences.
6- National Research Council (1994): Nutrient Requirements of poultry, 5th rev. ed. Washington, D.C.: National Academy of Sciences.

Journals:

Journal of Nutrition
-Journal of Animal Science
-Journal of Agriculture Science
-Nutrition Abstracts and Reviews
-Journal of Poultry Science
-Journal of small ruminant Nutrition
-Veterinary Record
-Journal of Dairy Science

Websites:

www.google.com

Course specification

-www. FAO
www.Sciencedirect.com
- www. Net veterinary resources- Agricultural sites
-www. Veterinary and agricultural web resources, livestock and poultry

Course Coordinators **Head of Department**

Name: Dr. Asmaa Salah Awad **Prof. Dr. Elham Saleh**

Sig. :

Course specification

Topics		Wk.	Knowledge and Understanding	Intellectual Skills	Practical and Professional Skills	General & Transferable Skills
1	**Introduction to animal nutrition and clinical nutrition Composition of the animal body and its food**	1,2	**a1,a3**	**b2,b4**	-	**d2,d3**
2	**Feedstuffs - Classification of feedstuffs**	1	-	-	**c1,c2,c3**	**d3**
3	**-Technical Nutrition terms**	2,3	-	-	**c2**	**d1,d2.d3,d4**
4	**Water and its metabolism**	3	-	**b2,b4**	-	**d1, d2**
5	**Concentrates as energy sources & deleterious factors**	4,5,6	-	-	**c1,c2.c3**	**d1,d2.d3,d4**
6	**Carbohydrates and their metabolism**	4	**a1, a3**	**b2,b4**	-	**d1, d2**
7	**Proteins and their metabolism**	5	**a1,a3**	**b2,b4**	-	**d1, d2**
8	**Lipids and their metabolism.**	6	**a1, a3**	**b2,b4**	-	**d1, d2**
9	**Plant protein sources & deleterious factors**	7,8,9	-	-	**c1,c2.c3**	**d1,d2.d3,d4**
10	**Minerals- macro & microelements - Introduction, distribution, functions - Deficiencies, supplements**	7,8,9,10, 11	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	-	**d3, d4**
11	**-Forage and roughage**	10,11,12,13		-	**c1,c2.c3**	**d3, d4**
12	**- Vitamin and animal health - Fat-soluble vitamins - Water-soluble vitamins**	12,13,14,15	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	-	**d1,d2.d3,d4**
13	**-Feed processing and manufacture**	14,15,16,17	-	-	**c1, c2, c3**	**d3, d4**
14	**Feed intake and factors affecting**	16,17	**a1,a3,a4,a5**	**b2,b4**	-	**d2, d4**
15	**Feedstuffs analyses -Physical inspection**	18,19,20	-	-	**c1, c2, c3**	**d1,d2.d3,d4**
16	**Digestion & absorption Digestibility of feeds**	18,19,20	**a1,a2,a3,a4,a5**	**b b1,b2,b3,b4**	-	**d2, d4**

Course specification

17	**-Chemical analyses -Using standard feed analyses tables**	21,22,23,24,25	-	-	**c1, c2, c3**	**d2, d4**
18	**Feeding standards and nutritional requirements for: -maintenance -growth -fattening**	21,22	**a1,a2,a3,a6**	**b2,b4**	-	**d2, d4**
19	**-reproduction and lactation -work production -wool production**	23,24	**a1,a2,a3**	**b2,b4**	-	**d2, d4**
20	**Ration formulation methods**	25	-	-	**c1, c2, c3**	**d2, d4**
21	**Feeding nonruminants and nutritional diseases**	26	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**		**d1,d2.d3,d4**
22	**Clinical nutrition in nonruminants**	27		-	**c1, c2, c3**	**d2, d4**
23	**Feeding farm animals -Feeding dairy cows & calves and nutritional diseases -Feeding buffalos and nutritional diseases**	26,27,28	**a1,a2,a6a4,a5**	**b1,b2,b3,b4**		**d1,d2.d3,d4**
	Ration formulation of dairy cattle	28,29	-	-	**c1,c2.c3**	**d3,d4,d5**
	-Feeding sheep & goat - nutritional diseases	29,30,31	**a1,a2,a3,a4,a5**	**b1,b2,b3,b4**	-	**d1,d2.d3,d4**
	Ration formulation of sheep and goat	30,31	-		**c1,c2.c3**	**d1,d2,d3,d4**
	-Feeding equine and nutritional diseases	32,33	**a2,a3,a4,a5,a6**	**b1,b2,b3,b4**	-	**d1,d2.d3,d4**
	Ration formulation of equine	32	-	-	**c1,c2.c3**	**d1,d2,d3,d4**
	-Feeding poultry and nutritional diseases	34, 35	**a1,a3,a4,a5,a6**	**b1,b2,b3,b4**	-	**d1,d2,d3,d4**
	Ration formulation for poultry	33,34	-	-	**c1,c2.c3**	**d1,d2,d3,d4**
	Feed additives-	36	**a1,a2,a3**	**b1,b2,b3**	-	**d1,d2**

Course specification

	Environmental factors inducing feed deterioration **-Mycotoxins and its importance** **-Pesticides** **- Heavy metals**	35	-		**c1,c2.c3**	**d1,d2,d3,d4**
	-Feed manufacturing quality assurance and its monitoring	36	-		**c1,c2.c3**	**d1,d2,d3,d4**
Student activity		**Along the course**	**a1,a2,a3,a4,a5,a6**	**b1, b2, b3,b4**	**c1,c2.c3**	**d1,d2,d3,d4**