Immunology (Advanced)

(674P)

PhD COURSE SPECIFICATION

A. BASIC INFORMATION

University:	**Sadat City**
Faculty:	**Veterinary Medicine**
Program on which the course is given:	**PhD in Veterinary Medical Sciences (Bacteriology, Mycology and Immunology)**
Department offering the Course:	**Bacteriology, Mycology and Immunology**
Course code:	**674P**
Course title:	**Immunology (advanced)**
Lectures (hr/week):	**1**
Practical (hr/week):	**2**
Course coordinator:	**Dr. Muhammad Sabry**

B. PROFESSIONAL INFORMATION

1) Overall aims of course

Upon successful completion of the course, the student will be able to:

) Understand the advanced concepts of Advanced Immunology and host pathogen relationship.
) Achieve competency in advanced laboratory technology in the field of advanced immunology.

2) Intended learning outcomes of course (ILOs)

a) KNOWLEDGE AND UNDERSTANDING

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

a.1. Recognize the advanced classification of the immune system.
a.2. Describe the advanced concepts of host-pathogen relationship and microbial pathogenesis.
a.3. Recognizes the advanced concepts of special immunology and tissue response.
a.4. Realize the response of the animal immune system towards the virulence factor of microorganisms.
a.5. Recognize the most important infectious clinical conditions and outline and the advanced host immune response (cellular and humoral immune response).
a.6. Realize the most important types molecular techniques used in the field of advanced immunology such as PCR and FACS.
a.7. Recognize and compare between available tools used in the field of advanced immunology

b) INTELLECTUAL SKILLS

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

b.1. Interpret the results of serological and molecular and other immune response determinants tests.
b.2. Identify the modern techniques used in the field of immunology such as PCR and FACS.
b.3. Compare according evidence the advanced causal relationship of microbes and the host immune response.
b.4. Compare between different molecular tools used in the field of immunology and choose time and money saving techniques.
b.5. Writing a scientific scheme in the field of advanced immunology.

c) PROFESSIONAL AND PRACTICAL SKILLS

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

c.1. Diagnose the important immune response validated tests used in the field of advanced immunology.
c.2. Apply modern techniques in the immunodiagnostic of infectious diseases
c.3. Use the available technology such as using internet software in the field of advanced immunology.
c.4. Write a good and scientific report in the field of advanced immunology.

d) GENERAL AND TRANSFERABLE SKILL

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

d.1. Communicate effectively and use information technology.
d.2. Work in at team.
d.3. Manage time efficiently.
d.4. Effective usage of available resources in the field of advanced immunology

3) Topics and contents

Topics	Lecture(hr	practical (hour)	Total hours
1- Introduction to immunology) Advanced).	2	…	2
2- Types of immunity (Advanced).	2	…	2
3- Innate immunity (Advanced).	10	8	18
4- Factors affecting innate immunity (Advanced).	8	8	16
5- Barriers of innate immunity (Advanced).	8	8	16
6- Antigens and its types (Advanced).	8	8	16
7- Immune response (Advanced).	10	8	18
8- Tissues involved in immune Response (Advanced).	6	4	10
9- Serological techniques used for diagnosis (Advanced).	8	15	23
10- Immunoglobulins (Advanced).	6	4	8
11- Antigen antibody reactions (Advanced).	10	15	25
12- Allergy (Advanced).	10	10	20
Total	**88**	**88**	**176**

4) Teaching and learning methods

a. Lectures to gain knowledge and understanding skills. The teacher usually uses all the available teaching tools like data show. The lectures usually take the form of open discussion.

b. Writing a review paper about the field of specialization to gain the skills of information collection, self-learning and presentation.

c. Practical and lab sessions to gain practical skills.

5) Student assessment

a. **METHODS:**
Ñ   Written exam to assess knowledge, information and intellectual skills.
Ñ   Practical exam to assess professional and practical skills.
Ñ   Oral exam to assess knowledge and information and intellectual skills.

b. **MATRIX ALIGNMENT OF THE MEASURED ILOS/ ASSESSMENTS METHODS:**

	K.U (a)	I.S (b)	P.P.S (c)	G.S (d)
Written exam	1-7	1-5		1,4
Practical exam		1,2,4	1-4	

Oral exam	**1-7**	**1-5**		**4**
Student activities				**1-4**

c. **WEIGHT OF ASSESSMENTS:**

Self-Learning Activities included:	
	Assay on a specific topic Self-Assessment Exercise Enhancing Questioning Skills Open discussion
Student Assessment Methods	

	Exams and activities	Weight (%)
	1- **Final written exam**	**50**
	2- **Final Practical exam**	**20**
	3- **Final oral exam**	**20**
	4- **Self-learning activities**	**10**
	Total	**100**

Assessment	Evidence
Final written exam	Marked and signed written paper
Practical exam	Marked and signed practical exam paper
Oral exam	Signed list of oral exam marks
Student activities	For assessment of knowledge and general and transferable skills

d. **List of references**

6.1. Essential textbooks

- ʃ Jawetz, Melnick and Adelberg's *Medical Microbiology*.
- ʃ Merchant and Packer. Veterinary Bacteriology and Virology.

6.2. Recommended books

- ʃ Janeway and Travers Immunobiology: The immune system in health and disease.

6.3. Periodicals

- ʃ Veterinary Microbiology
- ʃ Diagnostic Microbiology and Infectious Disease
- ʃ FEMS Immunology and Medical Microbiology
- ʃ FEMS Microbiology Reviews
- ʃ International Journal of Food Microbiology
- ʃ Journal of Microbiology, Immunology and Infection

- ∫ Research in Microbiology
- ∫ Systematic and Applied Microbiology
- ∫ Journal of Microbiology Research

6.4. Web sites

- ∫ Veterinary Microbiology – ResearchGate- http://www.researchgate.net/journal/0378-1135_Veterinary_Microbiology
- ∫ American Society of Microbiology
- ∫ Veterinary Microbiologist - Animal Careers - About.com
- ∫ Bacteriology: Bacteriology: Animal Health Diagnostic Center- https://ahdc.vet.cornell.edu/sects/bact/
- ∫ o asmnews@asmusa.org
- ∫ VetBact- http://www.vetbact.org/vetbact/
- ∫ o http://www.phage.org/black09.htm
- ∫ o http://www.microbe.org/microbes/virus_or_bacterium.asp

6) Facilities required for teaching and learning

- **7.1** Data-show.
- **7.2** Microscopes and media for characterization of microorganisms.
- **7.3** Network for technology transfer.
- **7.4** Bacteriology lab.
- **7.5** Biotechnology lab.
- **7.6** Computer.

	Course coordinators	Head of department
Name	Dr. Muhammad Sabry	Dr. Alaa El Din Moustapha
Signature		

Matrix alignment of course topics and ILOs

Topics	Lecture(hr	practical (hour)	Total hours	KU	ILS	PPS	GTS
1- Introduction to immunology) Advanced).	**2**	**...**	**2**	**1**			**1-4**
2- Types of immunity (Advanced).	**2**	**...**	**2**	**1,3**			**1-4**
3- Innate immunity (Advanced).	**10**	**8**	**18**	**1,3,4**			**1-4**
4- Factors affecting innate immunity (Advanced).	**8**	**8**	**16**	**1,2,4**			**1-4**
5- Barriers of innate immunity (Advanced).	**8**	**8**	**16**	**1,2**			**1-4**
6- Antigens and its types (Advanced).	**8**	**8**	**16**	**3-5**		**1-4**	**1-4**
7- Immune response (Advanced).	**10**	**8**	**18**	**7**	**1**	**1-4**	**1-4**
8- Tissues involved in immune Response (Advanced).	**6**	**4**	**10**	**2,4,5**	**1**	**1-4**	**1-4**
9- Serological techniques used for diagnosis (Advanced).	**8**	**15**	**23**	**5-7**	**1-3**	**1-4**	**1-4**
10- Immunoglobulins (Advanced).	**6**	**4**	**8**	**5**	**1,2,4**	**1-4**	**1-4**
11- Antigen antibody reactions (Advanced).	**10**	**15**	**25**	**5,4**	**1-3**	**1-4**	**1-4**
12- Allergy (Advanced).	**10**	**10**	**20**	**1-3**	**5**		**1-4**
Total	**88**	**88**	**176**				