Bacteriology (General)

(672P)

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:	**672P**
Course title:	**Bacteriology (General)**
Lecture (hr/week):	**1**
Practical (hr/week):	**2**
Course coordinator:	**Dr. Reda Tarabees**

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 general bacteriology.
- Achieve competency in modern and modern theories of laboratory technology.

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. Identify the advanced general bacterial characters of bacteria.
a.2. Describe the advanced concepts of microbial virulence.
a.3. Recognizes the advanced molecular techniques used in the field of bacterial diagnosis and identification.
a.4. Describe the advanced culture, antigenic structure and virulence factor of microorganisms.
a.5. Realize the most important infectious clinical conditions and the advanced tools used diagnosis of bacteria that cause such diseases using advanced techniques PCR.
a.6. Realize the impact of such diseases on animal health and environment.

b) INTELLECTUAL SKILLS

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

b.1. Interpret the results of microbiological, serological and molecular tests used in the field of bacteriology.
b.2. Identify microorganisms according to standard taxonomy using modern techniques.
b.3. Compare according evidence the causal relationship of microbes and diseases.
b.4. Interpret the data related to microbial infections and scientific research.
b.5. Write a professional scientific scheme in the field of veterinary advanced general microbiology.
b.6. Develop a plan for enhancing performance in the field of microbiology.
b.7. Make creative approaches for solving technical problems or issues associated with microbial diseases.

c) PROFESSIONAL AND PRACTICAL SKILLS

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

c.1. Identify medically important bacteria based on microscopic examination of stained preparations and findings of recent advanced methodology.
c.2. Choose and prepare appropriate culture media for a specific microorganism.
c.3. Apply biochemical tests commonly used for bacterial identification.
c.4. Perform different serological tests for identification of different microorganisms.
c.5. Conduct modern advanced biotechnology techniques for detection and classification of bacteria.

d) GENERAL AND TRANSFERABLE SKILL

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

d.1. Communicate effectively.
d.2. Demonstrate an ability to learn independently for a career of lifelong learning.
d.3. Use information technology to serve the professional practice.
d.4. Manage time efficiently.
d.5. Set tools and indicators for assessment of the performance of others.

3) Topics and contents

Topics	Lect	Pract	Total
Advanced General morphology of bacteria, physiology and genetics.	**10**		**10**
The host parasite relation and microbial pathogenesis.	**8**		**8**
The advanced feature of general bacteriology	**4**		**4**
The culture, antigenic structure and virulence factor of microorganisms of detrimental role in hypersensitivity	**10**		**10**
The most important infectious clinical conditions and outline the diagnosis of bacteria that cause such diseases	**12**		**12**
The microscopic examination of stained preparations of different bacteria and fungi.		**40**	**40**
Different culture media and biochemical tests commonly used for bacterial identification.		**28**	**28**
The different serological and biotechnology techniques tests for identification of different microorganisms		**20**	**20**
Total	**44**	**88**	**132**

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:

- Written exam to assess knowledge, information and intellectual skills.
- Practical exam to assess professional and practical skills.
- 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	**1-6**	**1-7**		
Practical exam		**7**	**1-5**	
Oral exam	**1,2,6**	**3,4,5**		
Student activities (assay, seminar, etc.)				**1-5**

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

6) List of references

6.1. Essential textbooks

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

6.2. Recommended books

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

6.3. Periodicals

- Veterinary Microbiology
- Diagnostic Microbiology and Infectious Disease
- FEMS Immunology and Medical Microbiology
- FEMS Microbiology Reviews
- International Journal of Food Microbiology
- 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
- o http://www.bact.wisc.edu/Bact330/330Lecturetopics
- o http://whyfiles.org/012mad_cow/7.html
- o http://www.microbelibrary.org/
- o http://www.hepnet.com/hepb.htm
- o http://www.tulane.edu/~dmsander/Big_Virology/BVHomePage.html
- o http://www.mic.ki.se/Diseases/c2.html
- o http://www.med.sc.edu:85/book/welcome.htm
- o http://www.biology.arizona.edu/immunology/microbiology_immunology.html.

7) 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. Reda Tarabees	Dr. Alaa El Din Moustapha
Signature		

Matrix alignment of course topics and ILOs

Topic	No. of hours /week		Total hours	Hours for Lect.	Hours for Pract.	ILOs			
	Lect.	Pract.				K.U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
General morphology of bacteria, physiology and genetics.	1	2	10	10		1,5	1,2	1	1-5
The host parasite relation and microbial pathogenesis.	1	2	8	8		2,3	1,3,4		1-5
The basic feature of general bacteriology	1	2	4	4		1,4	1		1-5
The culture, antigenic structure and virulence factor of microorganisms of detrimental role in hypersensitivity	1	2	10	10		2,4,6	3-7		1-5
The most important infectious clinical conditions and outline the diagnosis of bacteria that cause such diseases	1	2	12	12		5-6	3-7		1-5
The microscopic examination of stained preparations of different bacteria and fungi.	1	2	40		40		1-3	1,5	2,4,5
Different culture media and biochemical tests commonly used for bacterial identification.	1	2	28		28		1,7	2,5	2,4,5
The different serological and biotechnology techniques tests for identification of different microorganisms	1	2	20		20		1,7,4	3-5	2,4,5
Total			132	44	88				