



Bacteriology

Diploma COURSE SPECIFICATION

A. BASIC INFORMATION

| 1-Basic information | |
|--------------------------------|---------------------------------------|
| University | University Of Sadat City |
| Faculty | Veterinary Medicine |
| Program title: | Diploma of Microbiology |
| Academic year: | 2014/2015 |
| Department offering the course | Bacteriology, Mycology and Immunology |
| Corse code | 952 |
| Course Title | Bacteriology |
| Contact hours/week: | Lecture: 2 Practical: 2 |

B. PROFESSIONAL INFORMATION

1) Overall aims of course

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

-) Understand the basic concepts of general and systemic bacteriology.
-) Achieve competency in basic and modern 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. Recognize the general morphology of bacteria.
- a.2. Describe the virulence factors responsible for pathogenicity.
- a.3. Realize the culture, antigenic structure of microorganisms of detrimental role in hypersensitivity.
- a.4. Understanding the genetic basis for bacterial pathogenicity and virulence.
- a.5. Realize the most important bacterial species affecting animals.
- a.6. Determine the antigenic structure of these bacterial species.
- a.7. Recognize the most important bacterial products (enzymes, toxins, and pigments) and their potential role in bacterial virulence.

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.
- b.2. Identify a microorganism as bacteria according to their general morphological characters.
- b.3. Compare according evidence the causal relationship of microbes and diseases.

c) PROFESSIONAL AND PRACTICAL SKILLS

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

- c.1. Diagnose medically important bacteria based on microscopic examination of stained preparations.
- c.2. Write a scientific identification scheme for pathogens.
- c.3. Apply culture media and biochemical tests commonly used for bacterial identification.
- c.4. Use the different serological and technological tests for identification of different microorganisms as bacteria and fungi.

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. Write a scientific reports on bacterial species affecting animals

3) Topics and contents

| Topics | Lect | Pract | Total |
|--|------|-------|-------|
| General morphology of bacteria, physiology and genetics. | 10 | | 10 |
| The host parasite relationship and microbial pathogenesis. | 10 | | 10 |
| The most important bacterial species | 48 | | 48 |

| | | | |
|---|-----------|-----------|------------|
| The culture, antigenic structure and virulence factor of microorganisms of detrimental role in hypersensitivity | 10 | | 10 |
| The most important bacterial products including toxins, enzymes and pigments | 10 | | 10 |
| 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 | 88 | 88 | 176 |

ξ) 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.

ε) 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 | 1,3 | | 3 |
| Practical exam | | 2 | 1-4 | |
| Oral exam | 1,2,4,6 | 1,3 | | |
| 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 (%) |
| | ١- Final written exam | 50 |
| | ٢- Final Practical exam | 20 |
| | ٣- Final oral exam | 20 |
| | ٤- 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 assignments | Representative samples of presented materials |

١) List of references

6.1. Essential textbooks

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

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

√) Facilities required for teaching and learning

- √, 1 Data-show.
- √, 2 Microscopes and media for characterization of microorganisms.
- √, 3 Network for technology transfer.
- √, 4 Bacteriology lab.
- √, 5 Biotechnology lab.
- √, 6 Computer.

| | Course coordinators | Head of department |
|------------------|----------------------------|---------------------------|
| Name | Dr. Alaa El Din Moustapha | 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) | LS (b) | P.P.S (c) | G.T.S (d) |
| General morphology of bacteria, physiology and genetics. | 2 | | 10 | 10 | | 1-7 | 1-3 | 1-3 | 1-4 |
| The host parasite relationship and microbial pathogenesis. | 2 | | 10 | 10 | | 2 | 1-3 | 1-4 | 1-4 |
| The most important bacterial species | 2 | | 48 | 48 | | 3 | 3 | 3 | 1-4 |
| The culture, antigenic structure and virulence factor of microorganisms of detrimental role in hypersensitivity | 2 | | 10 | 10 | | 4-6 | 3 | 2 | 1-4 |
| The most important bacterial products including toxins, enzymes and pigments | 2 | | 10 | 10 | | 5 | 3 | 3 | 1-4 |
| The microscopic examination of stained preparations of different bacteria and fungi. | | 2 | 40 | | 40 | | 1 | 1 | 1-4 |
| Different culture media and biochemical tests commonly used for bacterial identification. | | 2 | 28 | | 28 | | 2 | 2,3 | 1-4 |
| The different serological and biotechnology techniques tests for identification of different microorganisms | | 2 | 20 | | 20 | | 3 | 3 | 1-4 |
| Total | | | 176 | 88 | 88 | | | | |