



Bacteriology and Mycology Course Specification

| Basic Information | | |
|--------------------------|---------------------------------|--------------|
| Course Code | ٢ABACT, ٢BBACT | |
| Course Title | Bacteriology and Mycology | |
| Academic Year | Third | |
| Academic Program | Bachelor of Veterinary Sciences | |
| Hours/week | Lectures: 2 | Practical: 2 |
| Term | First & Second | |

١. Course Aim

The course covers the fundamental principles related to bacteria and fungi mainly of veterinary importance and their interaction with host cells and molecular events during their replication.

٢. Intended Learning Outcomes

2.1. Knowledge and Understanding

On successful completion of this course, the student should be able to

- 2.1.1. Knowledge and understanding of General bacteriology.
- 2.1.2. Basic knowledge about structures, growth, reproduction, virulence of bacteria and fungi.
- 2.1.3. Basic knowledge about sterilization, and methods of sterilization.

٢,٢. Intellectual Skills

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

- 2.2.1. Critically assess laboratory results.
- 2.2.2. Understand the principle and operation of relevant laboratory equipment.
- 2.2.3 Able to correlate between different diseases and bacteria or fungi associated with them to reach to final diagnosis.
- 2.2.4 Able to select the suitable sample and the suitable laboratory test for diagnosis.
- 2.2.5 Able to choose the required measurements for prevention and control of Bacterial and fungal diseases.

٢,٣. Practical and Professional Skills

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

- 2.3.1. Work safely in a medical laboratory.
- ٢,٣,٢. Be able to access relevant literature and review information.
- 2.3.3. Ability to understand different methods of laboratory diagnosis.
- ٢,٣,٤. Practice different methods used for isolation of bacteria and fungi and their identification.
- ٢,٣,٥. Perform some serological tests used for detection of bacteria and fungi in clinical



samples and analyze the results.

2.3.6 Practice molecular techniques used for bacterial and fungal detection.

2.3.7. Writing of a report for infection.

٢,٤. General and Transferable Skills

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

٢,٤,١). The ability to use simple word and IT skills (i.e., data processing, software, internet, and multimedia) and the library to find information.

2.4.2. The ability to be self-motivated learners and responsive to feedback.

2.4.3. Working in team (i.e., sharing presentations and discussions and solving problem).

2.4.4. Enhancement of research capability through working in independent projects.

2.4.5. Reporting of the facts using printable sheets in the field of animal bacteriology and mycology.

2.4.6. Ability to write full scientific reports in the field of animal bacteriology and mycology.

٣. Course Contents

First Semester

| Topic | Total (hr) | Lectures (hr) | Practical (hr) |
|---|------------|---------------|----------------|
| ▪ Introduction and Structure of Bacteria and Morphology | 14 | 7 | 7 |
| ▪ Bacterial colonies and Bacterial spores | 8 | 4 | 4 |
| ▪ Bacterial growth and factors affecting growth | 4 | 2 | 2 |
| ▪ Bacterial genetics | 10 | 5 | 5 |
| ▪ Host-parasite relationship, Bacterial virulence | 12 | 6 | 6 |
| ▪ Bacterial products, Koch's postulate and Bacterial Vaccines | 12 | 6 | 6 |
| ▪ Total Teaching Hours | 60 | 30 | 30 |

Second Semester

| Topic | Total (hr) | Lectures (hr) | Practical (hr) |
|---|------------|---------------|----------------|
| ▪ Enterobacteriaceae group, Pasteurella, Spirochaetes and Campylobacter | 8 | 4 | 4 |
| ▪ Pseudomonas, Brucella, Mycoplasma and aemophilus | 8 | 4 | 4 |
| ▪ Staphylococcus and Streptococcus, | 8 | 4 | 4 |



| Listeria, Anthrax bacilli | | | |
|--|------------|-----------|-----------|
| ▪ Clostridium, General characters and Classification *Family: Theileriidae | 8 | 4 | 4 |
| ▪ Corynebacterium, Actinobacillus, Mycobacterium | 10 | 5 | 5 |
| ▪ Rickettsiales, Chlamydiales, Classification of dermatophytes. | 8 | 4 | 4 |
| ▪ Aspergillus species, The pathogenic Zygomycetes, Pathogenic yeasts and Dimorphic fungi, Mycotoxins and Mycotoxicosis | 10 | 5 | 5 |
| Total | 60 | 30 | 30 |
| ▪ Student activities | | | |
| ○ Mini reviews from the web and the library (individual activity) | — | — | — |
| ○ Presentations and seminars (individual activity) | — | — | — |
| ○ Illustrative posters (group activity) | — | — | — |
| Total (✓ semesters) | 120 | 60 | 60 |

* Contents sharing in the achievement of the intended learning outcomes; KU (knowledge and understanding), IS (intellectual skills), PPS (practical and professional skills) and GT (general and transferable skills).



٤. Teaching and Learning Methods

- 4.1. Lectures to gain knowledge and understanding skills.
 ٤,٢ Practical sessions for the students to gain practical skills.
 4.3. self directed learning skills.
 ٤,٤. Analyze the results and reach specific conclusion.
 4.5. Writing a review paper to gain the skills of self-learning and presentation
 4.6. Sample collection, preservation, examination and identification.

٥. Teaching and Learning Methods for Students of Limited Capabilities

- Activating office hours.
- Additional revisions for previously taught and difficult topics.
- Providing a summary for previous chapter at the end of each one.
- Following up student feedbacks.

| ٦,١. Methods | ٦. Student Assessment | | | |
|--------------------|------------------------------------|------------------------------------|--|---|
| | Intended Learning Outcomes Covered | | | |
| | KU | IS | PPS | GTS |
| Written exams | 2.1.1/2.1.2/2.1.3/ | 2.2.1/2.2.2/2.2.3/2.2.4/ 2.2.5/ | | |
| Practical exams | | | 2.3.1/2.3.2/2.3.3/ 2.3.4/2.3.5/2.3.6/ | |
| Oral exams | | 2.2.1/2.2.2/2.2.3/2.2.4/ 2.2.5/ | | 2.4.1/2.4.2/2.4.6 |
| Student activities | | | | 2.4.1/2.4.2/2.4.3/ 2.4.4/2.4.5/2.4.6 |

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

٦,٢. Exam Description

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|-----------------|---|
| Written exams | <ul style="list-style-type: none"> • Short essays. • Drawings. • Multiple choice questions. • True or false. • Comparisons. • Giving the scientific term/information. |
| Practical exams | <ul style="list-style-type: none"> • Slideshow exams. |



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|--------------------|--|
| | <ul style="list-style-type: none"> • Multiple choice questions. • Record designs and evaluation. • Practical case studies. |
| Oral exams | <ul style="list-style-type: none"> • The exam committee involves 3 examiners. Each evaluates the student by giving a separate score. The scores are then averaged. • Examiners are provided with the course specification. • The student randomly selects question cards. |
| Student activities | <ul style="list-style-type: none"> • Self-learning activities are evaluated throughout the semester. For details, refer to the section: “Σ Teaching and Learning Methods”. |

| Exams and activities | ٦,٣. Assessment Schedule | ٦,٤. Weighing of Assessments | |
|----------------------|--|------------------------------|-----------|
| | Week (in each semester) | Per semester | Total (%) |
| Semester work exam | 4 th , 8 th and ١٢ th | 8 | 16 |
| Student activities | Throughout the semester | 2 | 4 |
| Final written exam | 16 th | 25 | 50 |
| Final Practical exam | 16 th | 10 | 20 |
| Final oral exam | 16 th | 5 | 10 |
| Total | | 50 | 100 |

٧. List of References

٧,١. Course Notes

Departmental notes

٧,٢. Essential Books

- Veterinary Microbiology and Microbial Diseases, ٢٠٠٢, Quinn et al.
- Essentials of Veterinary Microbiology, ٥th ed., ١٩٩٥, Carter et al.
- Diagnostic Procedures in Veterinary Bacteriology and Veterinary Immunology: An Introduction, ٥th ed., ١٩٩٧, Tizard and Kersey.
- Veterinary Microbiology, ١٩٩٩, Hirsh and Zee.
- Veterinary Mycology, Laboratory Manual, ١٩٩٨, Hungerford et al
- Medically Important Fungi: A Guide to Identification, ٤th ed., ٢٠٠٢, Larone.

٧,٣. Recommended Books

- Veterinary Microbiology. Dwight C. Hirsh Yuan Chung Zee Publish, ١٩٩٩ by Blackwell Science, Inc.
- Diagnostic Microbiology. Betty A. Forbes Daniel F. Sahm Alice S. Weissfeld ١٩٩٨ by Mosby, Inc
- Pathogenic Fungi in Humans and Animals. Edited by Pexter H. Howard Arcel dekker Inc Newyork.basl ٢٠٠٣.



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- Fundamentals of Diagnostic Mycology. Fran fisher, M.Ed., M.t.(ASCP) W.B. SAUNDERS Company ١٩٩٨
 - Bacterial Disease Mechanisms. Wilson M, McNab R and Henderson B (٢٠٠٢). Cambridge: Cambridge University Press.
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٧,٤. Periodicals, websites, etc.

Scientific Journals

Scientific websites

- <http://www.cdc.org>
 - <http://www.pubmed.org/>
 - <http://www.sciencedirect.com/>
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Course coordinator:

Dr. Madiha Salah Ibrahim

Head of Department:

Dr. Madiha Salah Ibrahim