



Bacteriology and Mycology Course Specification

Basic Information

Course Code	3ABACT, 3BBACT	
Course Title	Bacteriology and Mycology	
Academic Year	Third	
Academic Program	Bachelor of Veterinary Sciences	
Hours/week	Lectures: 2	Practical: 2
Term	First & Second	

1. 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.

2. 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.

2.2. 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.

2.3. 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.
- 2.3.2. Be able to access relevant literature and review information.
- 2.3.3. Ability to understand different methods of laboratory diagnosis.
- 2.3.4. Practice different methods used for isolation of bacteria and fungi and their identification.
- 2.3.5. 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.

2.4. General and Transferable Skills

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

2.4.1. 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.

3. 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 (2 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).



Course Matrix for achievement of Intended Learning Outcomes

	Topics	Hours	Knowledge & Understanding								Intellectual Skills						Practical & Professional Skills									General & Transferable Skills				
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	1	2	3	4	
1	General Bacteriology	60	X	x	X	X						x	x		x	x	X	X	X											
2	Mycology	5			x	x	x		x	x	x	x	x		x	x				X	X	X	X	X	X					
3	Special Bacteriology	60	X	X	x	x	X	X	x	x		X	x	x	X	X				X	X	X	X	X	X					
4	Student activities																									X	X	X	X	



4. Teaching and Learning Methods

- 4.1. Lectures to gain knowledge and understanding skills.
- 4.2 Practical sessions for the students to gain practical skills.
- 4.3. self directed learning skills.
- 4.4. 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.

5. 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.

6.1. Methods	6. 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.

6.2. 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. |



	<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: “4. Teaching and Learning Methods”.

6.3. Assessment Schedule		6.4. Weighing of Assessments	
Exams and activities	Week (in each semester)	Per semester	Total (%)
Semester work exam	4 th , 8 th and 12 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

7. List of References

7.1. Course Notes

Departmental notes

7.2. Essential Books

- Veterinary Microbiology and Microbial Diseases, 2002, Quinn et al.
- Essentials of Veterinary Microbiology, 5th ed., 1995, Carter et al.
- Diagnostic Procedures in Veterinary Bacteriology and Veterinary Immunology: An Introduction, 5th ed., 1997, Tizard and Kersey.
- Veterinary Microbiology, 1999, Hirsh and Zee.
- Veterinary Mycology, Laboratory Manual, 1998, Hungerford et al
- Medically Important Fungi: A Guide to Identification, 4th ed., 2002, Larone.

7.3. Recommended Books

- Veterinary Microbiology. Dwight C. Hirsh Yuan Chung Zee Publish, 1999 by Blackwell Science, Inc.
- Diagnostic Microbiology. Betty A. Forbes Daniel F. Sahm Alice S. Weissfeld 1998 by Mosby, Inc
- Pathogenic Fungi in Humans and Animals. Edited by Pexter H. Howard Arcel dekker Inc Newyork.basl 2003.



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- Fundamentals of Diagnostic Mycology. Fran fisher, M.Ed., M.t.(ASCP) W.B. SAUNDERS Company 1998
 - Bacterial Disease Mechanisms. Wilson M, McNab R and Henderson B (2002). Cambridge: Cambridge University Press.
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7.4. 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:

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