SULTAN QABOOS UNIVERSITY

COURSE OUTLINE

PROGRAM: Veterinary Technology

1. Course Code	ANVS2206	
2. Course Title	Veterinary Microbiology	
3. Credits	3 CH, 12 CP, 6 ECTS	
4. Pre-requisite Course(s)	Introduction to Veterinay Technology ANVS2201 General Biology BIOL2101	
5. Co-requisite Course(s)	N/A	
6. Equivalent Course(s)	N/A	
7. Incompatible Course(s)	N/A	
8. Course Category	☐ University Requirement	☐ University Elective
	☐ College Requirement	☐ College Elective
	☐ Department Requirement	☒ Department Elective
	☒ Specialization Requirement	☐ Specialization Elective
	☐ Other (specify):	
9. Course Owner	College: Agricultural & Marine Sciences	Department: Animal & Veterinary Sciences
10. Course Type	☐ Lecture	☒ Lecture/Lab
	☐ Lecture/Seminar	☐ Lecture/Studio
	☐ Lecture/Tutorial	☐ Lecture/Lab/Tutorial or Seminar
	☐ Tutorial	☐ Laboratory (Practical)
	☐ Field or Work Placement	☐ Studio
	☐ Seminar	☐ Internship
	☐ Workshop	☐ Project
11. Language of Instruction	English	

12. Course Description

This course is designed to enable the veterinary technician students to satisfactorily isolate and identify bacteria that are commonly encountered in veterinary practice and give an overview of the diseases caused by them. Also included in this course essential laboratory techniques used in clinical diagnostic microbiology. Students are expected to achieve a level of understanding of veterinary microbiology so that they will be able to communicate effectively with the veterinarian.

13. Teaching/Learning Strategies

A variety of teaching formats are used.
The course is designed to increase knowledge of students in the area of veterinary microbiology. After a brief introduction on the overall course, students will be learning through theoretical means (lectures, power point presentation and discussion). A topic will be presented in the class and in Moodle each week for discussion. The required practical skills will be gained through practical sessions (hands-on) every week. On a weekly basis, a team of students will perform different laboratory techniques in-line with the American Society for Microbiology standards. In the lab, students work in small groups, dividing the main tasks into subtasks.
During the course, students will use the college and department facilities (Microbiology lab) to diagnose different clinical samples every week.

14. Assessment Components and Weight [%]

☒ Quizzes	☒ Practical	☐ Other (specify):
☐ Homework assignments	☐ Project	
☒ In-term examination(s)	☐ Final examination	

15. Grading Method

☒ A-F Scale ☐ Pass/Not passed

16. Textbook(s) and Supplemental Material
During the course, handouts will be uploaded on SQU Moodle. The content of the course, lecture notes, PowerPoint presentation, etc. are available to the students on SQU Moodle Platform: moodle.squ.edu.om (Anatomy & Histology Textbooks: Textbooks: 1. Charles M. Hendrix (ed.), Laboratory Procedures for Veterinary Technicians, (chapter 4) 2. P.J. Quin et al. Veterinary Microbiology and Microbial disease.

17. Matching Course Objectives with Program Outcomes and SQU Graduate Attributes

SQU Graduate Attributes

A. SQU graduates should be able to:	B. SQU graduates possess	C. SQU graduates should
1. apply the knowledge and skills relevant to the specialization 2. communicate effectively and use information and communication technologies 3. critically analyze complex information and present it in simple clear manner	1. interpersonal communication skills and alignment with culture of international labour market to assist them in practical life and in living successfully 2. skills and motivation for independent learning and engagement in lifelong learning and research 3. work ethics and positive values, and intellectual independence and autonomy 4. teamwork skills and display potential leadership qualities	relish good citizenship qualities, be conscious of their national identity and be socially responsible, engage in community affairs and be mindful of contemporary issues.

#	Intended Student Learning Outcome /Course Learning Objective	Relevant Program Outcome(s)	Applicable Attribute(s)
1.	Explain the basic principles of microbiology, the study of microbes, and how microbes are classified.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning.	A1, A2, A3,B3, C
2.	Evaluate the requirements necessary to promote the growth and multiplication of bacteria	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning.	A1, A2, A3,B3, C
3.	Identify a variety of types of pathogenic microorganisms and the diseases they produce in the host.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	A1, A2, A3,B3, C
4.	Perform basic microbiological techniques used in the laboratory setting of a veterinary hospital.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences.	A1, A2, A3,B3, C

		Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	
5.	Acquire an understanding of the safety rules for handling clinical or laboratory specimens that contain pathogenic bacteria.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	A1, A2, A3,B3, C
6.	Know how to aseptically obtain, and properly process, clinical specimens from biological sites.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	A1, A2, A3,B3, C
7.	Learn how to streak plates and obtain a pure culture of isolated colonies from a clinical specimen.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	A1, A2, A3,B3, C
8.	Obtain consistent results when performing a Gram stains, and understand how to interpret results.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	A1, A2, A3,B3, C
9.	Be able to identify the major types of pathogenic bacteria using selective/differential media, biochemical tests and the use of analytical profile index tests.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	A1, A2, A3,B3, C
10.	Be able to perform and interpret an antibiotic susceptibility test.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and	A1, A2, A3,B3, C

		radiographic procedures Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning	
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16. Student Responsibilities

It is the student's responsibility to know and comply with all University Academic Regulations relevant to participation in this course. These regulations specifically include attendance requirement and students` academic code of conduct.

For attendance, it is the student's responsibility to be punctual and to attend all classes.

Students are expected to perform their work with honesty and avoid any academic misconduct, which is defined as the use of any dishonest or deceitful means to gain some academic advantage or benefit. This can take many forms, including but not limited to, the following: copying, plagiarism, collusion and forging documents. For full details, please refer to the Undergraduate Academic Regulations and to the Student Academic Misconduct Policy.

Additionally, this course requires that you:

COURSE INFORMATION			
Course Code	ANVS2206	**Course Title**	Veterinary Microbiology
Semester/ Year	Spring of ea	**Section(s)**	10/11
Day, Time, and Place	To be decided each semester		

Course Coordinator	Dr. Yasmin ElTahir		
Office Location	2050	**Office Hours**	to be decided at the beginning of the semester
Office Tel. Ext.	3693	**Email**	yasmin@squ.edu.om

Tentative Schedule			
Week	**Lecture #**	**Topic/Material to be covered**	**Assessment**
1	1	Laboratory safety History of Microbiology	quiz
2	2	Morphology and Physiology of Bacteria Reproduction of Bacteria Bacterial growth	quiz
3	3	Colony morphology Microbial counts with serial dilution method (laboratory)	quiz
4	4	Identification of Gram-positive Cocci Gram stain (laboratory) Blood agar (laboratory)	quiz
5	5	Gram-Positive Cocci Staphylococcus Catalase test (laboratory)	quiz
6	6	Coagulase test (laboratory) Mannitol salt agar (laboratory)	quiz
7	7	Streptococcaceae Mastitis Strangles disease	quiz
8	8	Test 1 Endospore-forming Gram-positive Bacilli Bacilliaceae Endospore staining (laboratory)	Midterm/quiz
9	9	Gram-positive non-spore forming Bacilli The urease test (laboratory) Diseases caused by Corynebacterium species	quiz
10	10	Actinomycis species Identifying Gram-Negative bacteria Mackonkey agar (laboratory)	quiz
11	11	Triple sugar Iron (TSI) - & Hydrogen sulfide production (H2S) (laboratory) Citrate utilization (laboratory) Indole production (laboratory)	quiz
12	12	Gram Negative Facultatively Anaerobic Bacilli E. coli, Salmonella, Brucella Oxidase test, Motility test (laboratory)	quiz
13	13	Acid-fast staining (laboratory) Mycobacterium species	quiz
14	14	Test 2 Bovine tuberculosis, Paratuberculosis (Johne's disease)	Midterm/quiz
15	15	Antibiotics & revision	
16		Final Examination Practical Examination	exam
17			

APPENDIX A: INSTRUCTORS OF MULTIPLE SECTIONS

Section	Instructor	Day, Time, and Place	Office Location and Extension	Email	Office Hours

APPENDIX B: ADDITIONAL INFORMATION