1.	**Course Code**	ANVS4213	
2.	**Course Title**	Diagnostic Microbiology	
3.	**Credits**	3 CH, 12 CP, 6 ECTS	
4.	**Pre-requisite Course(s)**	Veterinary Microbiology (ANVS2206)	
5.	**Co-requisite Course(s)**	NA	
6.	**Equivalent Course(s)**	NA	
7.	**Incompatible Course(s)**	NA	
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: College of 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

Veterinary Microbiology is the study of infectious diseases caused by bacteria, viruses and fungi. Microbiology is an extremely important element of veterinary medicine since infectious diseases are common in domestic animals. In addition, some of these infections may be transmissible to man. This course has a vocational focus. It prepares students, in particular, for a career in veterinary diagnostic microbiology or related research. It extends the student's understanding of virulence mechanisms of veterinary pathogens, laboratory diagnosis and control of infectious diseases. It extends the essential laboratory techniques learned in the pre-requisite course Veterinary Microbiology.

13. Teaching/Learning Strategies

A variety of teaching formats is used. Technical aspects of each area are explained in practical classes and demonstrations. During the course, problem-solving exercises are set at the end of some sections for individual home study or may be given as group exercises in class. Some of these exercises may require reference to material in publications and all will require integration of information from different areas of the course or between courses.

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. During the course, students will use the college and department facilities (Microbiology lab) to diagnose different clinical samples every week.

The required practical skills will be gained through practical sessions 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.

14. Assessment Components and Weight [%]

☒ Quizzes	☒ Practical	☒ Other (specify): The students are given unknown samples to diagnose the

		causitive agent (s)
☒ 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 (Diagnostic Microbiology)

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.	Describe the principles of virus structure and replication.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures.	A1, A2, A3
2.	Know the characteristic features of the major viral groups and the important veterinary viruses within those groups, including the agents causing the spongiform encephalopathies. Understand the different types of relationship that viruses can have with their hosts and how certain viral infections become persistent.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures.	A1, A2, A3
3.	Understand the principles involved in the diagnosis viral infections.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and interpreting routine diagnostic clinical and radiographic procedures	A1, A2, A3
4.	Describe the structure and function of bacterial and fungal cells and their components. Understand the differences between bacteria and eukaryotic cells.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences. Demonstrate proficiency in conducting and	A1, A2, A3

		interpreting routine diagnostic clinical and radiographic procedures	
5.	Understand the basis of bacterial and fungal growth and replication. Know the basic physiology and metabolism of bacteria and fungi. Know the principles of sterilization and disinfection.	Demonstrate pertinent knowledge pertaining to preclinical veterinary sciences.	A1, A2, A3
6.	Know the characteristic features of the major bacterial and fungal groups and which bacteria and fungi are of veterinary importance, the diseases they cause and their host range.	Demonstrate knowledge of husbandry, diseases, anesthesia and medical and surgical treatment, in small, large and laboratory animal species. Demonstrate knowledge of preventive medicine and veterinary public health. Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning.	A1, A2, B3, B4, C
7.	Understand the basis of antimicrobial action and know the broad categories of antimicrobials. Know the basis of antimicrobial resistance, its importance, evolution and spread, and how it is measured	Demonstrate knowledge of husbandry, diseases, anesthesia and medical and surgical treatment, in small, large and laboratory animal species. Demonstrate knowledge of preventive medicine and veterinary public health. Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning.	A1, A2, A3, B3, B4, C
8.	8. Understand and know the principles of how to identify bacteria and fungi or their products using culture, direct visualization, metabolic tests, serological and nucleic acid based techniques.	Demonstrate knowledge of husbandry, diseases, anesthesia and medical and surgical treatment, in small, large and laboratory animal species. Demonstrate knowledge of preventive medicine and veterinary public health. Demonstrate ability to seek, find, evaluate and use information and employ information technology to engage in lifelong learning.	A1, A2, A3,B3, B4, C
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

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	ANVS4213	**Course Title**	Diagnostic Microbiology
Semester/ Year	Fall of each	**Section(s)**	10/11
Day, Time, and Place	To be decided at the beginning of the 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**	yasminsqu.edu.om

Tentative Schedule

Week	Lecture #	Topic/Material to be covered	Assessment
1	1	Intro and overview to the veterinary virology Viral structure Overview of viral pathogenesis	Quiz/lab report
2	2	DNA viruses How animals recover from viral infections Practical (unknown clinical sample) Diagnosis of viral infections-1	Quiz/lab report
3	3	Diagnosis of viral infections Practical (unknown clinical sample)	Quiz/lab report
4	4	DNA-Viral diseases in livestock Practical (unknown clinical sample)	Quiz/lab report
5	5	Diagnosis of viral infections-3 RNA viruses & RNA-Viral diseases in livestock	Quiz/lab report
6	6	Prions & animal disease Practical (unknown clinical sample)	Quiz/lab report
7	7	Urinary tract pathogen	Quiz/lab report
8	8	Test 1 Zoonotic diseases (Brucellosis & diagnosis)	Midterm exam
9	9	Antimicrobial action and resistance Practical (unknown clinical sample)	Quiz/lab report
10	10	Introduction to Veterinary Mycology, Fungal structure & classification of Fungi	Quiz/lab report
11	11	Overview of fungal diseases Diagnosis of fungal infection 1 Practical (unknown clinical sample)	Quiz/lab report
12	12	Dermatomycosis & superficial mycoses Diagnosis of fungal infection 2	Quiz/lab report
13	13	Histoplasmosis & blastomycosis Diagnosis of fungal infection 3 Test 2	Midterm exam
14	14	Coccidiodomycosis &paracoccidioidomycosis Practical revision class	Quiz
15	15	Candidiasis & cryptococcosis	Quiz
16		Class Examination (Written) Class Examination (Practical)	Final eaxm
17			

APPENDIX A: INSTRUCTORS OF MULTIPLE SECTIONS					
Section	Instructor	Day, Time, and Place	Office Location and Extension	Email	Office Hours

APPENDIX B: ADDITIONAL INFORMATION

Course Outline ANVS 4213