



Veterinary Clinical Laboratory Procedures III
VET 244
3 Credit Hours
Spring 2022
Cap: 15

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Office Hours: Mon. 8-9am, Friday 1-3pm

Preferred Communication (will respond within 24 hours): email or text

Modality: Hybrid

Class Location and Meeting Times: NTU VTH Modular Building Lab (face-to-face), Lectures via Zoom/face-to-face

Meeting Hours and Online Hours: Lecture Mondays 1-5pm & Thursday 8-12pm, Lab Thursdays 1-5pm

Required Materials:

Textbooks:

Microbiology for Veterinary Technicians, Vemulapalli & Hammac ISBN 9780692560471

Tools:

○ Calculator, ○ Smock, ○ Stethoscope, ○ Digital thermometer, ○ Bandage scissors, ○ Equine weight tape, ○ Black Sharpe pen, ○ Scrubs (optional) ○ Laptop/computer with audio/video capabilities

Lab Fee (if applicable): None

Mission, Vision, and Philosophy

Mission: Navajo Technical University honors Diné culture and language, while educating for the future.

Vision: Navajo Technical University provides an excellent educational experience in a supportive, culturally diverse environment, enabling all community members to grow intellectually, culturally, and economically.

Philosophy: Through the teachings of Nitsáhákees (thinking), Nahátá (planning), Íina (implementing), and Siihasin (reflection), students acquire quality education in diverse fields, while preserving cultural values and gaining economic opportunities.

Course Description

This course will cover the biology, clinical appearance and laboratory diagnosis of bacterial and viral causes of veterinary disease, including zoonotic importance. Cytological sample collection and evaluation and necropsy procedure will be covered. Laboratory safety and maintenance of laboratory equipment will also be covered. Prerequisites: VET230, VET232, VET234, and VET236. Students must earn 75% or better to advance to the next level of courses in the major. This course is only offered in the spring semester.

Course Objectives

Every student will learn to:

1. Demonstrate knowledge of proper handling, packaging, and storage of specimens for laboratory analysis to ensure safety of patients, clients, and staff
2. Properly perform analysis of laboratory specimens
3. Understand the biology of common bacterial, viral, and fungal disease
4. Perform cytologic evaluation
5. Perform necropsy procedures

Course outcomes	Assessment
<ol style="list-style-type: none"> 1. Demonstrate knowledge of proper handling, packaging, and storage of specimens for laboratory analysis to ensure safety of patients, clients, and staff <ul style="list-style-type: none"> • <i>Select and maintain laboratory equipment*</i> • <i>Implement quality control measures*, in a group</i> • Understand how to ensure safety of patients, clients, and staff in the collection and handling of samples* • <i>Prepare, label, package, and store specimens for laboratory analysis*</i> • Given the characteristics of the patient and the requested analysis, the veterinary technician student will properly prepare, handle, and submit appropriate samples for diagnostic analysis in order to ensure maximum accuracy of results • Given the characteristics of laboratory instruments and equipment, the veterinary technician student will determine proper maintenance and quality control procedures to ensure accurate results. 	<p>Written exams, practical exams, clinical observation</p>
<ol style="list-style-type: none"> 2. Properly perform analysis of laboratory specimens <ul style="list-style-type: none"> • <i>Perform microbiologic procedures/evaluations</i> <ul style="list-style-type: none"> ○ <i>Collect representative samples*</i> ○ <i>Culture bacteria and perform sensitivity tests*</i> ○ <i>Identify common animal pathogens using commercially available media and reagents, in a group*</i> ○ <i>Collect milk samples and conduct mastitis testing (e.g. CMT, bacterial culture), in a group*</i> ○ <i>Perform common biochemical tests, in a group*</i> ○ <i>Perform staining procedures*</i> ○ <i>Culture and identify common dermatophytes*</i> • Given the characteristics of the patient, the specimen submitted and the results of the analysis, the veterinary technician student will be able to recognize accurate vs. erroneous results in order to provide maximum diagnostic benefit. • Given the laboratory specimen collected and characteristics of the patient, the veterinary technician student will determine appropriate methodology and carry out analytical procedures necessary to provide accurate and precise diagnostic information. • Having determined the accuracy of analytical results, the veterinary technician student will work with the veterinarian to determine if a need exists for additional laboratory tests that will provide useful diagnostic information 	<p>Written exams, practical exams, clinical observation</p>
<ol style="list-style-type: none"> 3. Understand the biology of common bacterial, viral, and fungal disease <ul style="list-style-type: none"> • Understand symbiotic relationships, lifecycle, virulence, Linnaean classification scheme • Understand the zoonotic potential of viral, bacterial, and fungal diseases • Understand common small and large animal disease including biology, diagnosis, treatment, and prevention 	<p>Written exams, practical exams, clinical observation</p>

<p>4. Perform cytologic evaluation:</p> <ul style="list-style-type: none"> • Assist in collecting, preparing and evaluating transudate, exudate, and cytologic specimens (joint, cerebrospinal, airway, body cavity) • Perform fine needle tissue aspirates and impression smear preparation (differentiate benign vs malignant) • Prepare and stain bone marrow specimens • Collect, prepare and evaluate ear cytology* • Collect, prepare and evaluate canine vaginal smears*, in a group • Evaluate semen • Understand timing and types of pregnancy testing • Assist with artificial insemination 	<p>Written exams, practical exams, clinical observation</p>
<p>5. Perform necropsy procedures:</p> <ul style="list-style-type: none"> • <i>Perform a postmortem examination, or dissection on non-preserved animal*, in a group</i> • <i>Collect samples, store, and ship according to a laboratory protocols*, in a group</i> • Explain how to handle rabies suspects, and samples safely* • <i>Handle disposal of dead animals</i> • <i>Perform humane euthanasia procedures</i> 	<p>Written exams, practical exams, clinical observation</p>

Connections to Program Assessment (Course-Embedded Measures): Part of SLO “Perform diagnostic procedure: blood smear or imaging.”

Course Activities

Week	Date	Class Topics/Reading Due	Assignments Due	Assessments
1	Jan. 18 Jan. 21	Orientation (syllabus, course expectations), pre-test Chapter 1 and 2 - intro and tools of the trade <i>HW #1 given out</i> <i>Weekly journal assignment given out</i> Make up for Equine Week		Pre-test
	Jan 21	Last day to add/drop		
2	Jan. 24 Jan. 25	Chapter 3 and 4 - Intro to bacteria and Sterilization <i>HW #2 given out</i> <i>Final project information given out</i> Make up for Equine Week	HW #1 due Journal review #1 due	Quiz #1
3	Jan. 31	Chapter 5 and 6 - Pathogens and immunity and drug resistance <i>HW #3 given out</i>	HW #2 due Journal review #2 due	Quiz #2
4	Feb. 7	Chapter 7 - gram positive cocci <i>HW #4 given out</i>	HW #3 due Journal review #3 due	Quiz #3
5	Feb. 14	Chapter 8 and 9 - gram positive rods I and II <i>HW #5 given out</i>	HW #4 due Journal review #4 due	Quiz #4
6	Feb. 24	Chapter 10 - acid fast rod <i>HW #6 given out</i>	HW #5 due	Quiz #5

	Feb. 22	Make up Class for 2/21/22	Journal review #5 due	
7	Feb. 28	Chapter 11, 12, and 13 - gram negative rods I, II, and III <i>HW #7 given out</i>	HW #6 due Journal review #6 due	Quiz #6
8	Mar. 7-11	Midterm		Midterm
	Mar. 14-18	Spring Break		
9	Mar. 21	Chapter 14 and 15 - Bacteria without cell walls and obligate intracellular bacteria <i>HW #8 given out</i>	HW #7 due Journal review #7 due	Quiz #7
10	Mar. 28	Equine Week Chapter 16 and 17 - Spiral and curved bacteria and anaerobes <i>HW #9 given out</i> Make-up class 1/21 & 1/25	HW #8 due Journal review #8 due	Quiz #8
	Mar. 31	Last day to withdraw with "W"		
11	April 4	Chapter 18 and 19 - mycology intro and superficial fungal infections <i>HW #10 given out</i>	HW #9 due Journal review #9 due Final project rough draft due	Quiz #9
12	April 11	Chapter 20 and 21 - subcutaneous and systemic mycoses <i>HW #11 given out</i>	HW #10 due Journal review #10 due	Quiz #10
13	April 18	Chapter 22 - bacterial lab procedures <i>HW #12 given out</i>	HW #11 due Journal review #11 due	Quiz #11
14	April 25	Chapter 23 - fungal lab procedures <i>HW #13 given out</i>	HW #12 due Journal review #12 due	Quiz #12
15	May 2	USDA foreign animal diseases <i>HW #14 given out</i>	HW #13 due Journal review #13 due Final projects due	Quiz #13
16	May 9-13	Final exam	HW #14 due	Final exam WILL INCLUDE lab practical
	May 13	Grades due to the Registrar		
	May 14	Graduation		

***** Note, this is a general outline. It may be adjusted as needed throughout the semester. *****

Grading Plan

Homework: 120 points 20%

Class Participation:	6 points	1%
Project(s)/portfolio/labs:	54 points	9%
Quizzes:	60 points	10%
Mid-term:	150 points	25%
Final Exam:	210 points	35%
Total	600 points	100%

Letter Grade	Percent
A	100 – 92%
B	91 – 83%
C	82 – 75%
D	74 – 60%
F	59 – 0%

Course Policies

Classroom / Clinic Policy

Students are expected to act and dress in a professional, safe and ethical manner. This includes good behavior and professional/safe dress (smocks, scrubs, no caps, no sandals, no long fingernails, no dangling jewelry, no loose/baggy clothing, well groomed). Students will treat animals and clients properly and professionally. Students should handle this course as part lab and practice proper safety and hygiene. Students will not be able to participate in the clinic if not properly dressed with safety and professionalism in mind and without the required equipment (Smock, Stethoscope, Digital thermometer, Bandage scissors, Equine weight tape, Black Sharpe pen). Students without required equipment will be IMMEDIATELY sent to the bookstore to purchase required equipment. Students are NOT allowed to give clients their opinion on diagnoses, interpretation of lab results, treatments, or prognoses—doing so will result in IMMEDIATE dismissal from the Veterinary Technology program.

Grading Policy

Students must do their own work on homework assignments and exams. Discussion among students on homework and cases is encouraged for clarification of assignments, technical details of using software, and structuring major steps of solutions. Cheating and plagiarism are strictly forbidden. Cheating includes but is not limited to: plagiarism, submission of work that is not the student's own, submission or use of falsified data, unauthorized access to exams or assignments, use of unauthorized material during an exam, supplying or communicating unauthorized information for an assignment or exam. Cheating will result in a zero (0) score on the assignment or exam, and possibly the course depending on the nature. Students are required to make prior arrangements with the Instructor if they are unable to take an exam as scheduled; final decision to take the exam at a different time is at the discretion of the Instructor. Students need to notify the Instructor of their emergency (life or death) situation before the exam is given; final decision to take the exam at a different time is at the discretion of the Instructor.

Participation

Students are expected to attend and participate in all class activities- as listed above, as it is part of the grade. Points will be given to students who actively participate in class activities including field trips, laboratories, and ask questions of guest speakers and other presenters. A major portion of the learning process consists of your active participation in class and in the hospital including the observation of others especially in the clinical setting. Keeping up with the assigned reading will allow you to contribute to class and case discussions and enhance your understanding of the topics and your ability to perform the procedures in the clinical setting. Listening to your classmates' presentations and providing them with appropriate feedback will also enhance your learning and class participation. Participation in this course and all other courses in the Veterinary Technology curriculum requires scheduled on-call time which

includes but is not limited to the proper feeding, watering, and general care of the NTU sheep and chickens. Failure to participate in the care of these animals may result in failure of this course.

Cell phone and headphone use

Please turn cell phones off or place them on silence or vibrate mode **BEFORE** coming to class. Also, answer cell phones **OUTSIDE OF CLASS** (not in the classroom). Cell phones used during class will be confiscated until the end of class. Exercising cell phone use courtesy is appreciated by both the instructor and classmates. Headphones are to be removed before coming to class.

Computer / Printer / Telephone Use

Students will not be allowed to use computers during class & clinic times unless permitted by the instructor. Printers are for assignments only. Continued violation of this request will result in loss of privileges. The copier and fax are for office use only. Do not ask to use the clinic telephones for personal business; inform your friends and family members not to call you during class and clinic times. Telephones are for veterinary-related business only.

Attendance Policy

Students are expected to attend all class sessions. A percentage of the student's grade will be based on class attendance and participation. Absence from class, regardless of the reason, does not relieve the student of responsibility to complete all course work by required deadlines. Furthermore, it is the student's responsibility to obtain notes, handouts, and any other information covered when absent from class and to arrange to make up any in-class assignments or tests if permitted by the instructor. Incomplete or missing assignments will necessarily affect the student's grades. Instructors will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. **Instructors may drop students from the class after three (3) absences unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.**

Tardiness

Tardiness is disruptive to your classmates and the instructor. One (1) point will be docked from your overall points for every day you are late up to ten (10) minutes. Tardiness beyond ten (10) minutes is considered an absence. Attendance will be taken at the beginning of class. It is your responsibility to make sure you sign in on the sign-in sheet if you arrive late for class.

Study Time Outside of Class for Face-to-Face Courses

For every credit hour in class, a student is expected to spend two hours outside of class studying course materials.

Study Time for Hybrid or Blended Courses

For a hybrid or blended course of one credit hour, a student is expected to spend three hours per week studying course materials.

Study Time for Online Courses

For an online course of one credit hour, a student is expected to spend four hours per week studying course materials.

Academic Integrity

Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and

plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor. **The use of another person's ideas or work claimed as your own without acknowledging the original source is known as plagiarism and is prohibited.**

Diné Philosophy of Education

The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Íina and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

At NTU's Zuni Campus, the A:shiwí Philosophy of Education offers essential elements for helping students develop Indigenous and Western understandings. Yam de bena: dap haydoshna: akkya hon detsemak a:wannikwa da: hon de:tsemak a:ts'umme. *Our language and ceremonies allow our people to maintain strength and knowledge.* A:shiwí core values of hon i:yyułashik'yanna:wa (respect), hon delank'oha:willa:wa (kindness and empathy), hon i:yyayumola:wa (honesty and trustworthiness), and hon kohoł lewuna:wediyahnan, wan hon kela i:tsemanna (think critically) are central to attaining strength and knowledge. They help learners develop positive self-identity, respect, kindness, and critical thinking skills to achieve life goals successfully.

Students with Disabilities

Navajo Technical University is committed to serving all students in a non-discriminatory and accommodating manner. Any student who feels that she or he may need special accommodations should contact the Accommodations Office (<http://www.navajotech.edu/student-services#accomodations-services>) in accordance with the university's Disability Accommodations Policy (see http://www.navajotech.edu/images/about/policiesDocs/Disability_Exhibit-A_6-26-2018.pdf).

Email Address

Students are required to use NTU's email address for all communications with faculty and staff.

Final Exam Date: TBA

THIS SYLLABUS IS SUBJECT TO CHANGE BY THE INSTRUCTOR