COURSE OUTLINE

VSCT 210 – VETERINARY MICROBIOLOGY

Prepared By: Mary O’Horo Loomis, DVM
A. **TITLE:** Veterinary Microbiology

B. **COURSE NUMBER:** VSCT 210

C. **CREDIT HOURS:** 3

D. **WRITING INTENSIVE COURSE:** No

E. **COURSE LENGTH:** 15 weeks

F. **SEMESTER(S) OFFERED:** spring

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   2 hr. lecture and 2 hours laboratory per week

H. **CATALOG DESCRIPTION:**
   This course consists of the study of pathogenic organisms encountered in animals and the diseases that they cause. Basic concepts of cytology and the interpretation of cytological slides are also covered. The laboratory focuses on the management of a veterinary microbiology lab as well as the isolation and identification of veterinary pathogens. Enrollment is limited to students in the veterinary technology programs (521 & 2278)

I. **PRE-REQUISITES/CO-REQUISITES:**
   a. Pre-requisite(s): BIOL 209, VSCT 112, VSCT 202, VSCT 203, VSCT 207
   b. Co-requisite(s): none

J. **GOALS (STUDENT LEARNING OUTCOMES):**
   By the end of this course, the student will be able to:

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<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<td>a. Examine pathogenic traits of bacteria and host defenses as both relate to the etiology of disease.</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Competence</td>
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<td>b. Discuss bacterial pathogens of domestic animals and the diseases they cause</td>
<td>3. Prof. Competence</td>
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<td>c. Discuss and utilize different media, stains and biochemical tests used in the culture and identification of pathogens</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Competence</td>
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<td>d. Isolate and identify common organisms (normal flora and pathogens) from biological samples</td>
<td>3. Prof. Competence</td>
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<td>e. Perform common techniques used for obtaining cytological specimens and interpret cytology slides</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Competence</td>
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<td>f. Discuss viruses, systemic mycosis and prions and the veterinary diseases they cause</td>
<td>3. Prof. Competence</td>
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**K. TEXTS:**
Laboratory Procedures for Veterinary Technicians, Hendrix & Sirois, Sixth Edition, Mosby, St. Louis, MO.

Veterinary Microbiology Lab Manual

**L. REFERENCES:** none

**M. EQUIPMENT:** Lab coat or scrub top to protect against bacteria and stains

**N. GRADING METHOD:** A-F

**O. MEASUREMENT CRITERIA/METHODS:**
- Exams
- Quizzes
- Laboratory reports and quizzes
- Laboratory Practicum

**P. DETAILED COURSE OUTLINE:**

I. Review of Microbiology and Introduction to Veterinary Microbiology

II. Pathogenesis and Host defenses
   - Morphology
   - Anatomy
   - Bacterial Properties
   - Host Defenses

III. Stains, Media, and Biochemical tests
   - Bacteriological Media
   - Selective and Non Selective Isolation Media
   - Prokaryotic Metabolism

IV. Pathogens of the skin and wounds
   - *Staphylococcus aureus*
   - *Streptococcus zooepidemicus*
   - *Corynebacteria*
   - *Actinomycetes*
   - *Dermatophilus*
   - *Actinobacillus*
   - *Erysipelothrix*
   - *Fusobacterium and Bacteriodes*

V. Pathogens of the eye and ear
   - *Moraxella*
   - *Chlamydophila*
   - *Pseudomonas*
   - *Proteus*
Malassezia

VI. Pathogens of the respiratory system
   *Bordetella*
   *Haemophilus*
   *Pasteurella*
   *Strep equi*
   *Rhodococcus*
   *Mycobacteria*

VII. Pathogens of the gastrointestinal tract
   *Enterobacteriaceae*
   *Clostridium*
   *Mycobacterium*
   *Campylobacter*
   *Helicobacter*

VIII. Pathogens of the urinary tract
   *Leptospira*
   *Corynebacterium renale*

IX. Mastitis producing pathogens
   *Strep ag*
   Kirby-Bauer Method
   CAMP test
   Esculin test
   Mycoplasma
   *Nocardia*
   *Prototheca*

X. Pathogens of the reproductive tract
   *Brucella*
   *Campylobacter*
   *Taylorella*

XI. Pathogens of the CNS
   *Clostridium tetani*
   *Listeria*

XII. Pathogens causing systemic disease
    *Bacillus anthracis*
    *Borrelia burgdorferi*
Francisella tularensis  
Actinobacillus equuli  
Yersinia pestis  
Bartonella henselae  
Richettsia and Chlamadophila

XIII. Systemic Mycosis, Virology and Prions

Q.  **LABORATORY OUTLINE:**

Week 1: Safety and Essentials
Week 2: Cytological Techniques
Week 3: Canine Vaginal Cytology
Week 4: Biochemicals, Staining, and Media
Week 5: Sample Collection and Handling
Week 6: Skin and Wounds
Week 7: Dermatophytes and Ectoparasites
Week 8: Eye and Ear
Week 9: Respiratory
Week 10: Gastro-Intestinal
Week 11: Urogenital
Week 12: Mastitis Lab Tour
Week 13: Mastitis plates and Sensitivities
Week 14: Restock and Check-out