Fundamentals in Veterinary and Biomedical Laboratory Techniques
ANSCI 365
(4 credits: 3hr lecture & 2.5 hr lab/week)

Syllabus

Week 1 - Introduction
(Veterinary Practice Laboratory, basic research laboratory, general laboratory safety)

Week 2 - Laboratory Instrumentation
(Principles and proper use of balance, pH meter, microscope, refractometer, chemistry analyzer, hematology analyzer, centrifuge, thermocycler)

Week 3 - Hematology & hemostasis
(Hematopoiesis, neoplasia & coagulation, blood collection, blood smears, blood indices)

Week 4 - Immunology, serology and molecular diagnostics
(Immune response, immune disorders, tests of humoral & cell-mediated immunity, blood groups, molecular diagnostics)

Week 5 - Diagnostic microbiology
(Bacterial cell morphology, bacterial agar inoculation and growth, primary identification, antibiotic sensitivity testing)

Week 6 - Laboratory measurements, weights and volumes
(Proper means of measuring weights & volumes, standards)

Week 7 - Laboratory Solutions
(Calculating concentrations and dilutions, preparing solutions and media)

Week 8 - Graphing and statistical analysis
(Basic statistical terms and applications)

Week 9 - Urinalysis
(Specimen collection, handling & storage, physical & chemical properties, microscopic examination)

Week 10 - Internal parasites
(Terminology & classifications, diagnosis of alimentary & blood parasitism)

Week 11 - External parasites
(Terminology & classification, skin scrapings, cellophane tape preparation, parasite identification)

Week 12 - Clinical chemistry
(Protein assays, hepatobiliary assays, kidney assays, pancreas assays, electrolyte assays)

Week 13 - Cytology
(Sample collection, concentration techniques, smear preparations, fixing & staining techniques, cytology of specific sites)