

SYLLABUS

VETERINARY ENTOMOLOGY AND PARASITOLOGY ENTO/PATB 4500/5500

INSTRUCTORS: Dr. John Lloyd, Department of Renewable Resources, Entomology
Dr. William Jolley, Department of Veterinary Sciences, Parasitology

COURSE OVERVIEW: Enrollees will be introduced to arthropods, roundworms, flatworms and protozoa of major significance as infectious agents of wild and domestic animals. Basic terminology, biology, epidemiology, pathology, diagnosis and control pertinent to each group of infectious agents will be covered in discussion of exemplary members of each taxonomic family. Informational emphasis is intended to enable future veterinarians and veterinary technologists, as well as animal biologists and owners/managers to more efficiently maintain the health of animals in their care.

COURSE ORGANIZATION: Two lecture periods and one laboratory section per week provide opportunity for instruction, discussion and hands-on familiarity with organisms of special importance. Entomology will be covered during the first half, and parasitology the second half of the semester. Detailed outlines of agent groups and individuals, and laboratory exercises will be provided or available at the beginning of each half of the course. 4500-level enrollment is intended for undergraduate students having taken 8 semester hours of Biological Science. 5500-level enrollment is intended for students with the 8 hours of Biological Science prerequisite, and enrolled in a graduate studies program. Information covered in lecture and laboratory sessions is correlative, and thereby relevant for all lecture and laboratory examinations and quizzes.

SCHEDULE AND TOPICS:

- Week 1: Arthropod Biology; Louse flies and Keds
- Week 2: Hornflies; Face flies; House flies; Stable flies
- Week 3: Mosquitoes; Black flies
- Week 4: Horse flies; Gnats; Exam I
- Week 5: Myiasis
- Week 6: Lice; Ticks; Mites
- Week 7: Ticks; Mites
- Week 8: Ento Exam II. Parasitology Introduction; Handouts; Terminology
- Week 9: Nematode Biology; Ascarids; Whipworms; Trichinellids
- Week 10: Hookworms; Pinworms; Trichostrongylids; Strongyles
- Week 11: Filarids. Flatworm Biology
- Week 12: Flukes; Tapeworms. Helminth Exam
- Week 13: Protozoology; Ciliates; Amoebas; Flagellates
- Week 14: Flagellates; Apicomplexa/Sporozoa
- Week 15: Apicomplexa/Sporozoa
- Final Exam: Protozoa

GRADING CRITERIA: Two,100-point lecture examinations pertaining to Entomology and two pertaining to Parasitology, as well as weekly 10-point quizzes in laboratory sessions will be used to assess knowledge acquired in the course (~ 600 points total). Reading assignments (for all students) and class presentations (for students enrolled for 5500 credit) may be evaluated in addition to, or as a component of, information assessed in tests and quizzes.

REFERENCE MATERIALS: Required Textbook: *Georgi's Parasitology for Veterinarians*, Eighth Edition (1999), by Bowman, Lynn and Eberhard, Saunders/Elsevier Science Publishers, ISBN 0-7216-9283-4.

PERTINENT JOURNALS: *American Journal of Veterinary Research*, *International Journal for Parasitology*, *Journal of Parasitology*, *Journal of the American Veterinary Medical Association*, *Journal of Veterinary Parasitology*. Laboratory and lecture materials pertinent to subject matter in each half of the course will be provided and/or specified as appropriate.

LECTURE FORMAT EXAMPLE:

Agent Group: Nematodes/roundworms

Agent: *Parascaris equorum*/large, intestinal ascarid of equine animal group

Life Cycle: Egg, L1 embryo, L2 larva, L3 larva, L4 larva, L5 juvenile, Adults

Infective Stage: Egg containing L2 larva must be ingested w/feed or water

Stage Pathology: L2, L3 and L4 stages migrate through tissue, including intestinal mucosa, liver, lungs, crawl up bronchi and trachea, are swallowed, develop to adult males and females, which mate, produce eggs to complete and continue cycle. Migrating larvae cause direct and indirect damage by perforation of tissues, bleeding, stimulation of immune response (primary cause of eosinophilia), swelling, tissue death and transmission of bacteria from intestinal tract into circulatory system and various occupied organs. Adults sometimes migrate into (and plug or perforate) bile ducts, stomach, large intestine/caecum. Outside of small intestine they are most likely to cause migration-related damage. Inside of the small intestine, they sometimes entangle in a large mass, block the ileocaecal valve, and produce colic-like symptoms, eventually leading to rupture of ileum and death due to peritonitis.

Diagnosis: Fecal flotation for eggs; observation of spontaneously passed adults.

Control: Prevention by maintaining worm-free animals in worm-free facilities. Treatment with effective anthelmintics: avermectins, benzimidazoles, or other systemic drugs to combat adults and migrating larvae: administration every 2 to 4 months. Administer (cheaper) enteric drugs, effective against juvenile and adult worms, once each month.