

BIOL 3970 - Wildlife Diseases

**Biology Department, College of Arts and Sciences, Valdosta State University
BIOL 3970 (CRN 23614)**

Spring Semester, 2019

Instructor - Dr. J. Mitchell Lockhart

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Office Hours: As posted or by appointment

Course hours: Lecture – Tuesday and Thursday, **11:00** AM – 12:15 PM BC 1024

Textbook – *Field Manual of Wildlife Diseases in the Southeastern United States, Third Edition*, William R. Davidson (**suggested**), *Field Manual of Wildlife Disease – General Field Procedures and Diseases of Birds*, National Wildlife Health Center (**suggested** – free online at http://www.nwhc.usgs.gov/publications/field_manual/). Various other readings will be provided.

Other resources:

Journal of Wildlife Diseases – www.jwildlifedis.org/archive/

Wildlife Disease Information Node – <http://wildlifedisease.nbio.gov/>

Manual of Common Diseases and Parasites of Wildlife in Northern British Columbia

http://www.unbc.ca/nlui/wildlife_diseases_bc/

Course Description: This course will provide an introduction to the field of wildlife disease biology. Topics examined will include specific avian, mammalian, fish, reptile, and amphibian diseases as well as methods to survey for, recognize, and diagnose diseases. Information concerning biosafety, biosecurity, proper permitting, and working with the public will be presented.

Prerequisites: BIOL 1100, BIOL 1107, BIOL 1108, BIOL 3200, BIOL 3250 or permission of instructor

Attendance: MANDATORY! I do keep track of who is and isn't attending lecture. This course has a considerable amount of new concepts and terminology and it serves your best interest to attend class regularly. Any student disrupting the classroom and affecting the learning experience of others will be asked to leave. Along these lines, **NO** cell-phones, beepers, and/or associated earpieces are allowed either in the **lecture room or laboratory**. This includes viewing devices during class. Students are not permitted to leave the lecture or laboratory rooms to receive messages during regular course time. My policy is not to give a warning, rather, if a cell-phone or beeper activates during lecture/laboratory or you attempt to view or send messages, you will lose one **LETTER GRADE** from your final grade. Viewing a cell-phone or pager that activates on "silent" mode during a quiz or exam will be treated as an instance of **CHEATING** and handled accordingly (in addition to the above penalty). Those wishing to utilize laptop computers as part of the class are required to sit in the first 3 rows of the classroom. Viewing any material other than class material will result in the same penalties above. University guidelines dictate that students missing 20% of lecture sessions for this class are subject to receiving a grade of "F" regardless of their standing in the course.

Students With Documented Disabilities: Students requiring accommodations or modifications because of documented disabilities should discuss this need with Dr. Lockhart at the beginning of the semester. Students not registered with the Special Services Program must contact the Access Office for Students with Disabilities. Their phone number is 245-2498.

Assessment:

Assignments	100-200
Exam 1 (February 19)	100
Exam 2 (March 28)	100
Exam 3 (May 2)	100
Comprehensive Final Exam	200

For the lecture grade, three exams (tentative) plus a comprehensive final will be given. Questions will be based on material covered in lecture, in my notes, and from assigned readings. Exam questions will be in a variety of formats including (but not limited to) essay, short answer, multiple choice, fill in the blank, drawings, etc...Any questions concerning grading should be brought to the attention of the professor **NO LATER** than one week following return of the exam. **NO make-up exams will be given.**

Grade Scale: **90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, <60 = F**

Privacy Act: Because of the Buckley Amendment or Privacy Act, grades will not be discussed over the phone, via email, given to friends, or given to relatives.

Cheating: Refer to the Student Code of Ethics in the Valdosta State University Student Handbook. A student caught cheating will be penalized ranging from receiving a zero for that assignment or test to failing the class.

Important Dates: Midterm – Thursday, March 7, Final Exam – Wednesday, May 8, 10:15AM – 12:15PM

- **The Professor reserves the right to modify the above contents with proper notification.**

Tentative Lecture Outline:

Introduction

Disease transmission in natural populations

Field techniques for investigation of wildlife diseases

Diagnostic and Laboratory techniques for investigation of wildlife diseases

Working with zoonotic disease/biosafety considerations

Permits and paperwork for wildlife disease investigations

Working with stakeholders

Foreign Animal Diseases

Specific Disease Lists

Avian

Cholera, Tuberculosis, Salmonellosis, Chlamydiosis, Mycoplasmosis, Miscellaneous Bacterial Diseases, Aspergillosis, Candidiasis, Miscellaneous Fungal Diseases, Duck Plague, Inclusion Body Disease of Cranes, Miscellaneous Herpesviruses of Birds, Avian Pox, EEE, Newcastle Disease, Avian Influenza, Woodcock Reovirus, Hemosporidiosis, Trichomoniasis, Intestinal and Renal Coccidiosis, Sarcocystis, Eustrongylidosis, Tracheal Worms, Heartworm, Gizzard Worm, Acanthocephaliasis, Nasal Leeches, Miscellaneous Parasitic Diseases, Algal Toxins, Mycotoxins, Avian Botulism, Organophosphorus and Carbamate Pesticides, Chlorinated Hydrocarbons, PCBs, Oil, Lead, Selenium, Mercury, Cyanide, Salt, Barbiturates, Miscellaneous Chemical Toxins, Electrocutation

Mammalian

Deer

Hemorrhagic Disease, Cutaneous Fibroma, Miscellaneous Viral Diseases, Anthrax, Dermatophilosis, Brain Abscess, Miscellaneous Bacterial and Rickettsial Diseases, Toxoplasmosis, Liver Fluke, Lungworm, Stomach Worm, Meningeal Worm, Arterial Worm, Abdominal Worm (*Setaria*), Tapeworm, Ecto's – Ticks, Louse Flies, Lice, Ear Mite, Demodectic Mange, Piebald Anomaly, Capture Myopathy

Elk

Infectious Diseases, Parasitic Diseases

Feral Swine

Pseudorabies, Vesicular Stomatitis Virus, Swine Brucellosis, Tuberculosis, Lungworms, Kidney Worm, Liver Flukes, Acanthocephalans, Ascarids, Trichinosis, Hog Lice

Black Bear

Rabies, Canine Distemper Virus, Trichinosis, Canine Heartworm, *Spirometra*, Ascarids, Demodectic Mange

Raccoon

Rabies, CDV, Parvovirus, Tularemia, Leptospirosis, *Trypanosoma*, *Spirometra*, *Baylisascaris*, *Dracunculus*, Stomach Worms, Acanthocephala

Striped Skunk

Rabies, Canine Distemper Virus, Leptospirosis, Ascarids

Red Fox
Rabies, Canine Distemper Virus, Leptospirosis, *Echinococcus*, Canine Heartworm, Subcutaneous Worm, Sarcoptic mange

Gray Fox
Canine Distemper Virus, Rabies, Leptospirosis, Heartworm

Coyote
CDV, Parvovirus, Rabies, Brucellosis, *Echinococcus*, Heartworm

Bobcat
Feline Panleukopenia, Rabies, Toxoplasmosis, Cytauxzoonosis, *Spirometra*

Opossum
Rabies, Leptospirosis, Sarcocystis, Besnoitia, Stomach Worm

Mink
Mink Virus Enteritis, Dioctophyme

River Otter
CDV, Salmonellosis, Subcutaneous worm

Muskrat
Tularemia, Tyzzer's Disease

Beaver
Tularemia, *Giardia*

Cottontail Rabbit
Shope's Fibroma, Tularemia, Staphylococcosis, Tapeworm, Ascarid, Warbles

Gray Squirrel
Squirrel Fibroma, Warbles, Miscellaneous Skin Conditions - Congenital Alopecia, Dermatophytoses, Notedric Mange, Louse

Woodchuck
Woodchuck Hepatitis, Rabies, Ascarids

Armadillo
Leprosy

Others
Chronic Wasting Disease, Cervid Adenovirus Infection, Malignant Catarrhal Fever, Brucellosis, Bovine Tuberculosis, Johne's Disease, Anaplasmosis, Elaphostrongylosis

Course Outcomes/Assessments

1. To understand the diversity of wildlife diseases.
2. To understand epidemiological, ecological, and social factors that underlie the emergence and spread of selected wildlife diseases.
3. To learn potential strategies for surveillance and management of wildlife health.

Assessments for this course will include reading of scientific literature, written exams, various assignments, and classroom literature presentations.

General Education Outcomes/Assessments

This course will help students achieve four of the general education outcomes for Valdosta State University:

3. Students will use computer and information technology when appropriate. They will demonstrate knowledge of computer concepts and terminology. They will possess basic working knowledge of a computer operating system. They will be able to use at least two software tools, such as word processors, spreadsheets, database management systems, or statistical packages. They will be able to find information using computer searching tools.
4. Students will express themselves clearly, logically, and precisely in writing and in speaking, and they will demonstrate competence in reading and listening. They will display the ability to write coherently in standard English; to speak well; to read, to understand, and to interpret the content of written materials in various disciplines; and to listen effectively and to understand different modes of communication.
5. Students will demonstrate knowledge of scientific and mathematical principles and proficiency in laboratory practices. They will understand the basic concepts and principles underlying scientific methodology and be able to collect, analyze, and interpret data. They will learn a body of scientific knowledge and be able to judge the merits of arguments about scientific issues. They will be able to perform basic algebraic manipulations and to use fundamental algebraic concepts to solve word problems and equations. They will be able to use basic knowledge of statistics to interpret and to analyze data. They will be able to evaluate arguments based on quantitative data.
7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written and visual materials. They will be skilled in inquiry, logical reasoning, and critical analysis. They will be able to acquire and evaluate relevant information, analyze arguments, synthesize facts and information, and offer logical arguments leading to creative solutions to problems.