

Biology 5870A Parasitology

CRN 86217 – 4 credit hours

Fall Semester 2023

Instructor - Dr. J. Mitchell Lockhart

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Office Hours Monday 10:00-11:00AM, Tuesday 8:30-9:30AM, Wednesday 11:00AM-2:00PM
(virtual by Microsoft Teams) or by appointment

Course hours Lecture – Monday, Wednesday, Friday 8:00-8:50 AM, BCB 2202

Laboratory – Monday, 11:00AM – 1:50PM, BCB 2071

Textbook– Foundations of Parasitology, 8th edition. Gerald D. Schmidt and Larry S. Roberts,
McGraw Hill Suggested

Students With Documented Disabilities: Students with disabilities who are experiencing barriers in this course may contact the Access Office (<https://www.valdosta.edu/student/disability/>) for assistance in determining and implementing reasonable accommodations. The Access Office is located in University Center Room 4136 Entrance 5. The phone numbers are 229-245-2498 (V), 229-375-5871. For more information, please visit VSU's Access Office or email: access@valdosta.edu. To request reasonable accommodations for pregnancy and childbirth, contact Ms. Myia Miller, Title IX Compliance Officer, at maburden@valdosta.edu. Please note, you will be required to provide documentation from an appropriately licensed medical professional indicating the requested accommodations are medically necessary.

Grades: Lecture 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 instructor **NO LATER** than one week following return of the exam. **NO** make-up exams will be given. Laboratory exam questions will involve powerpoint projection of parasitology images.

For the laboratory grade, 2 lab practicals (tentative) will be given. These practicals will be given online. Lockdown browser and a Webcam are **MANDATORY**. If your laptop cannot perform these functions then find one that can or you will be required to take exams in the VSU Testing Center. **The** practicals cannot be made up. If a lab practical is missed, you will receive a zero for that lab grade.

The final grade will be a combination of your exam scores, final exam score, and the various projects discussed below:

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visit: <https://www.valdosta.edu/administration/student-affairs/title-ix/>

Other Assignments Your instructor MAY periodically assign some tasks to be completed during class or outside of class. They can be based on lab exercises or lecture material. Your grade will be determined by how well you complete the assignment. Point values remain to be determined.

Laboratory Portfolio (200 points)

In laboratory, you will be preparing an exhaustive series of photos and original drawings of your observations of parasites and vectors through the microscope. Each lab unit has a series of designated drawings/photographs you are to do. Should it become necessary that I check every notebook at the end of each lab I will spot check notebooks during lab to see that you are making satisfactory progress. Each drawing should be on the laboratory drawing sheet and should be labeled to include identification of the image and magnification. Any significant features of your drawing should be labeled. You will be graded on effort (which isn't hard to determine).

Course Outcomes:

Learning Outcomes:

On satisfying the requirements of this course, students will have the knowledge and skills to:

1. Discuss the concept of parasitism and other animal associations; explain the concept of harm; understand the basic features and characteristics of hosts.
2. Tell the advantages and disadvantages of parasitic life style; discuss the economic consequences of parasitic diseases and difficulties associated with eliminating/controlling parasitic diseases.
3. Tell the major types of protozoan parasites, their adaptive strategies and damage; discuss fungal and plant parasites.
4. Articulate major helminth and arthropod parasites, their taxonomy and harms caused.
5. Discuss the major means of transmission of parasites and the factors that influence parasite transmission.
6. Explain the host defense mechanisms against parasitic infections and mechanisms of co-infections (e.g. parasite HIV co-infection).
7. Articulate the types of pathology caused by parasites, pathological mechanism, factors influencing pathology and damage to specific organs.
8. Discuss about useful parasites.
9. Explain the importance of correct parasite identification and methods of identification.
10. Articulate the major aspects of controlling parasites and treating parasitic diseases.

Course:

By the end of BIOL 3870, students who successfully complete the course should have:

1. Gained factual knowledge, to include anatomy/histology, terminology, methods, and principles, about Parasitology. (DO – 2,3,5; VSUGEO – 5)
2. Learned fundamental principles, generalizations, or theories of Parasitology. (DO – 2,3,5; VSUGEO – 5)
3. Learned to apply course material (to improve thinking, problem-solving, and decisions) in Parasitology. (DO – 2,3,5; VSUGEO – 5)
4. Developed specific skills, competencies and points of view needed by professional in the fields most closely related to Parasitology. (DO – 2,3,5; VSUGEO – 5)
5. Acquired an interest in learning more by asking questions and seeking answers about Parasitology. (DO – 2,3,5; VSUGEO – 5)

Department:

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in both written and oral formats used in peer-reviewed journals and at scientific meetings.

2. Describe the evolutionary processes responsible for biological diversity, explain the phylogenetic relationships among the major

Tentative Lecture Outline - This is the order in which we will cover topics.

TOPIC

Introduction to Parasitology

Basic Principles and Concepts I: ~~Basic~~ Systematics, Ecology and Evolution

Basic Principles and Concepts II: Immunology and Pathology

Parasitic Protozoa: Form, Function, and Classification

Kinetoplasta: Trypanosomes and Their Kin

Other Flagellated Protozoa

The Amebas

Phylum Apicomplexa: Gregarines, Coccidia, and Related Organisms

Phylum Apicomplexa: Malaria Organisms and Piroplasms

Phylum Ciliophora: Ciliated Protistan Parasites

*Phyla Microspora and Myxozoa: Parasites with Polar Filaments

*The Mesozoa: Pioneers or Degenerates?

Introduction to Phylum Platyhelminthes

Trematoda: Aspidobothrea

Trematoda: Form, Function, and Classification of Digeneans

Digeneans: Strigeiformes

Digeneans: Echinostomatiformes

Digeneans: Plagiorchiformes and Opisthorchiformes

Parasitic Insects: Diptera, Flies
Parasitic Insects: Strepsipte