

## COURSE SYLLABUS

### PARASITOLOGY: Biology 4091.001 and 4091.601– Fall 2023

**INSTRUCTOR:** Art Goven  
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#### LECTURE LOCATION:

**4091.001: Denton, Visual Arts Building, Lecture Room ART 223**

**4091.601: Frisco, Inspire Park, Lecture Room 1003**

**Lecture Mode:** In Person, Face to Face

#### LECTURE TIME:

**4091.001: Tuesday and Thursday at 9:30 to 10:50 am**

**4091.601: Tuesday and Thursday at 2:00 to 3:20 pm**

Each lecture will contain approximately an hour and twenty minutes of material. The lectures will consist of detailed Power Point slides with a comprehensive explanation of the material on each slide. Attendance is required; however, roll will not be taken. **Each lecture contains significant amounts of information that must be comprehended / understood to pass each test.**

#### EMAIL and OFFICE HOURS:

**Denton Campus:** T / Th 11 am to 12 noon and M /W /F 9am to 10:00am and 2:00 pm to 3:00pm

**Frisco Campus:** T / Th after every class

**Office hours are best by appointment:** I have three classes with several hundred students and times fill up. I encourage you to make an appointment to see me if you are having trouble understanding the material that goes beyond what can be covered using email, or if you want to discuss grades, or have other issues that require a private meeting. If you make an appointment, I will be there for you, if you just show up I may already be with someone. Contact me by email to schedule an appointment. Appointments can be in person or by telephone. Remember email is great for simple questions, can be used anytime, and is quick, and yes, I answer email.

#### LECTURE MODE:

In person, face to face. The lectures will consist of detailed Power Point slides with a comprehensive explanation of the material presented on each slide. **Each lecture contains significant amounts of information that must be comprehended / understood to pass each test.**

#### TEXT:

**No text is required for this course.** A good reference book is: *Human Parasitology*, Bogitsh et al.; Elsevier Academic Press, latest Edition or a previous edition will be fine.

#### CANVAS:

To make it easy for you to follow and take notes Power Point slides will be posted on Canvas prior to each lecture. It is recommended that you go to Canvas before each lecture to access the PP slides for review. You can take notes on the Power Point slides using a tablet or make a copy to use

for traditional note taking. PP slides are helpful, but you must attend lecture to gain a full understanding of the material and to know what material is stressed.

Exam grades will also be posted on Canvas. Grades on Canvas will represent the score earned on each test and will not represent points received from test curves or points received from tests regrading that may result in additional points.

Finally, class announcements will be made using Canvas so select notifications “on” in your Canvas settings.

### **COURSE DESCRIPTION:**

This course is designed to introduce students to animal parasites. The course surveys parasitic protozoa (amoebae, ciliates, flagellates, malaria), nematodes (roundworms), cestodes (tapeworms), and trematodes (flat worms) concentrating on model organisms that are infective for the human host. A key focus of the course will be the study of parasite nomenclature, life cycles, epidemiology, pathology and clinical manifestations, diagnosis, treatments, and prevention. Student will also learn about the host response to parasites via the immune system and the ways parasites have evolved to avoid or use the immune response to enhance their survival. Information will also be presented about how parasites have undergone adaptations to enable them to successfully survive extreme environments in the host.

### **COURSE OBJECTIVES:**

By the end of the course, you will understand:

- The nature of parasitism
- The life cycle, epidemiology, pathology, treatments, and diagnosis, and prevention of common human parasites
- Host – parasite relationships, especially from the human host perspective
- Immuno-parasitology or the role of the immune system in host protection against parasites, and how parasites have evolved to circumvent the immune response
- Parasite adaptation to live in an extreme environment, the host

### **COURSE REQUIREMENTS:**

**Earn an overall number of points on tests and quizzes to receive passing grade**

**EXAMS:** Four (4) lecture exams will be given. Each exam will be worth 100 points. Each exam is equal in weight. The final exam is not cumulative. The final grade will be determined using the number of points you earn out of the maximum 400 possible points. If attendance quizzes are given these points will be added into the total possible points. **After each exam make sure that you have a grade in Canvas. If you are missing a grade it is your responsibility to notify the instructor.**

**MISSED EXAMS:** No make-up exams will be given without a valid written reason from the appropriate university personnel or program. The material to be tested on in the make-up will be decided upon by the instructor. It is your responsibility to contact the instructor before

missing an exam using email to ensure a written record. It is your responsibility to schedule approved make up exams. In scheduling use email so that a written record is established. Make-up exams should be **extremely rare** and must be completed before the originally scheduled exam is returned to the class.

**RE-GRADING POLICY:** If you believe that your exam has been graded in error you must notify the instructor within two (2) lecture periods after you receive your grade.

**FINAL GRADE:** Your final grade will be determined as follows:

**A = 360 points**

**B = 320 points**

**C = 280 points**

**D = 240 points**

**F = less than 240 points**

**TEST CURVES:** For each exam the highest grade in the class will be elevated to 100 points. This is the test curve. For example, if the highest grade on Exam 1 is 94 points then 6 points will be added to the grade. These 6 points will then be added to all Exam 1 grades. This curve takes care of poorly written questions.

**FINAL CURVE:** At the end of the course the highest average in the class will be elevated to 100% of the 400 points. This is the overall curve. For example, if the highest final average is 95% of the 400 points, then 5% of the 400 points will be added to the final average. These points will be added to all final averages. Do not count too heavily on these points because the final average will include the points earned through test curves. Also, there are always students who score in the high 90's on every test. Finally, if an extra credit assignment is given some students will have final point numbers over 400.

**There are no scheduled extra credit opportunities in this course.**

**ACADEMIC INTEGRITY:** I, and UNT expects you to maintain the highest academic integrity. Remember, honor is your heritage, protect it. Suspicious behavior observed during exams will be assumed to be cheating, and the student will receive a zero on the exam. Repeated lapses in academic integrity presumed to be cheating will be referred to the Dean of Students, which may result in disciplinary action, including removal from the course. Suspicious behavior includes, but is not limited to, copying from another student's test, using external materials such as a text or notes during a test, and communicating with someone during a test. UNT Policy 06.003 / <http://policy.unt.edu/policy/06-003>. **A VISIBLE CELL PHONE DURING AN EXAM WILL RESULT IN A ZERO ON THAT EXAM.**

**DISABILITY ACCOMMODATION:** In accordance with Section 504 of the federal Rehabilitation Act of 1973 and the ADA of 1990, UNT endeavors to make reasonable adjustments in its policies, practices, services, and facilities to ensure equal opportunity for qualified persons with disabilities to participate in all educational programs and activities. Students seeking reasonable accommodation must first register with the Office of Disability Accommodation (ODA) to verify

eligibility. This should be done as early as possible to avoid delay in implementation. If it is found that you need an ADA / ODA accommodation, contact me after via email to set up an in-office appointment by the 12<sup>th</sup> day of class. ODA website is <http://www.unt.edu/oda>. The phone number is 940-565-4323.

**SUGGESTIONS:** Do not let material build up. Do not binge study lectures. Review and study lectures as they are presented. Do not be shy, ask questions in class or via email for clarification, or use office hours. Most (all) test questions will come from lecture material. The class is run in an informal manner, relax. It is difficult to do well in this course unless you attend all the lectures. I stress to you --- **attendance matters**. History tells us that students that do not attend this class do not do well.

### **IMPORTANT CLASS and EXAM DATES:**

Make sure you know the academic calendar, including dates when you can drop the course, change to pass/fail, etc.

**EXAM 1 September 14th**

**EXAM 2 October 12th**

**EXAM 3 November 7th**

**EXAM 4 Thursday, December 14<sup>th</sup> @ 8:00am to 10:00am**

**Exam dates may change depending on how fast or slow we cover the material. However, I promise exam dates will never be moved up, given earlier than the published date**

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**BIOLOGY 4091.001 and 4091.601  
PARASITOLOGY  
LECTURE OUTLINE**

The lecture outline is divided into four sections. Approximately 75% of the course will be spent on Section II, Survey of Parasites. We will cover parasites in this section by arranging them into groupings, for example “Nematodes infective in the egg stage.” We will begin with those parasites possessing the least complex life cycles (nematodes) and finish with those having the most complex (protozoan). In Section III we will briefly discuss parasite adaptations. Finally, in Section IV we will discuss immuno-parasitology.

**I. INTRODUCTION**

**II. SURVEY OF PARASITES**

**A. Helminths**

- 1. Nematodes - Roundworms**
  - a. Nematodes infective in the egg stage**
  - b. Nematodes infective in the larval stage**
  - c. Tissue nematodes**
- 2. Cestodes - Tapeworms**
  - a. Intestinal cestodes**
  - b. Tissue cestodes**
- 3. Trematodes - Flukes**
  - a. Trematodes infective in the metacercarial stage**
  - b. Trematodes infective in the cercarial stage**

**B. Protozoans**

- 1. Intestinal and Atrial Protozoans**
  - a. Class Sarcodina - Amoeba**
  - b. Class Ciliata - Ciliates**
  - c. Class Mastigophora - Flagellates**
- 2. Blood and Tissue Protozoans**
  - a. Class Mastogophora - Flagellates**
  - b. Class Sporozoasida - Malaria**
  - c. Unclassified**

**III. PARASITE ADAPTATIONS FOR SURVIVAL IN EXTREME ENVIRONMENTS**

**IV. IMMUNOPARASITOLOGY**

## **A. General Outline of the Host Immune System**

- 1. Nonspecific Immune Response**
  - a. Phagocytosis**
  - b. Inflammation**
- 2. Specific Immune Response**
  - a. Humoral-Mediated Immunity**
  - b. Cell-Mediated Immunity**

## **B. Immunity to Helminth Parasites**

- 1. Gastrointestinal Nematodes**
- 2. Tissue Nematodes**
- 3. Schistosomes**

## **C. Immunity to Protozoan Parasites**

- 1. Intracellular Protozoans**
  - a. Plasmodium**
  - b. Leishmania**
  - c. American Trypanosomes**
- 2. Blood and Tissue Protozoan**
  - a. African Trypanosomes**

## **D. Immunological Control of Parasitic Infection -Immunizations**