TENTATIVE
Human Parasitology Lab
01:146:329
Fall 2022

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TA information will be available at the beginning of the semester

PRE/CO-REQUISITE Human Parasitology 01:146:328

COURSE OVERVIEW

Parasitology is an exciting field which lies at the crossroad of numerous disciplines including, among others, biochemistry, physiology, epidemiology, medicine, and ecology. The traditional definition of parasite encompasses helminths, protozoa, and arthropods which have an intimate and potentially damaging relationship with a host organism. The definition does not include bacteria or viruses and, as a result, some might wonder at the need for a course such as this. The reality, however, is that parasitic diseases are some of the most debilitating conditions throughout the world. The neglected tropical diseases (NTDs) which include 17 diseases (mostly parasitic) afflict billions of humans and are associated with extreme poverty. Even in developed countries the effects of parasitic infections are not insignificant. The only way to begin to address this worldwide problem is by understanding these organisms and therefore the goal of this lab.

The objective of this course is to introduce students to the morphology, developmental life cycle, pathology, epidemiology, treatment, and control of the major eukaryotic parasites of humans. Additionally, it will introduce to students some of the basic techniques used in identifying parasite infections. During the semester, students will read and discuss several scientific papers in parasitology. The objectives of the course are summarized in the following enduring understandings, learning outcomes, and CBN learning goals

Enduring understanding 1: A parasitologist must be able categorize helminth (trematode, cestode, and nematode) and protozoan parasites.
Learning outcomes:
a. Use basic morphological characteristics to identify the major human parasites
b. Draw generalized life cycles for the major groups of parasitic organisms
c. Identify routes of transmission, mechanisms of pathology, and treatment options

Enduring understanding 2: Parasitology requires the understanding and use of a wide range of laboratory techniques
Learning outcomes:
a. Sequence methods of techniques commonly used in parasitology labs
b. Understand how techniques are used to answer questions in parasitology

Enduring understanding 3: Scientists must be able to communicate with each other and the public to share discoveries and find solutions to problems.
Learning outcomes:
a. Understand how to use the library system to find scientific articles and do research
b. Understand how to read a scientific article
c. Explore some of the major professional parasitological societies

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CBN learning goals

1. Master factual and conceptual knowledge in cell biology and neuroscience that will provide a solid foundation for success in advanced training and professional careers.

   We will learn (a) to identify the major helminth and protozoan parasites of humans and understand their life cycles; (b) techniques that are commonly used in parasitology; and (c) how to find and read scientific articles and the importance of scientific communities. These will be relevant for advanced research and in health-related fields.

2. Develop an ability to summarize, integrate and organize information.

   The importance of life cycles as organizers to summarize the biology, pathology, control strategies, etc. associated with these organisms will be emphasized. The structure of scientific communication will be explored.

3. Use scientific reasoning to evaluate the potential for current research and new discoveries to improve our understanding of cell biology and neuroscience and its relevance to human health and to our society.

   Parasitic disease is a widespread human health problem in many parts of the developing world. The development of effective solutions to this problem will require a thorough understanding of these organisms, the use of appropriate research techniques, and the ability to communicate findings and collaborate with other scientists and the public. This course will provide the species overview and critical thinking skills required in the field of parasitology.

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COURSE SCHEDULE

Lab	Date	Lecture topic
1		Adult Trematodes Technique - Microscopy Paper 1 Discussion
2		Larval Trematodes Technique Paper 2 Discussion
3		Cestodes Technique Paper 3 Discussion
4		Intestinal Nematodes Technique - Flotation concentration Paper 4 Discussion
5		Tissue Nematodes Technique Paper 5 Discussion
		Exam 1 Student paper discussions
6		Amoebae Technique Paper 6 Discussion
7		Flagellates & Ciliates Technique Paper 7 Discussion
8		*Trypanosoma* & *Leishmania* Technique Paper 8 Discussion
9		*Plasmodium* & *Toxoplasma* Technique Paper 9 Discussion
10		Arthropods Technique - ELISA Paper 10 Discussion
		Exam 2 Student paper discussions

This schedule is subject to change

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ASSESSMENTS

Attendance
Attendance is required and will be taken at the beginning of each lab. Students are expected to be present and participate for the entire lab period. Missing three labs will result in automatic failure of the course.

Quizzes
Each week there will be a quiz at the beginning of class related to the previous week's material. These questions will cover lesson material and any other content (videos, readings, papers, etc.) that were assigned for that week. Once a quiz has closed, it cannot be made up.

Paper discussions
Each week, a scientific paper(s) will be assigned for discussion during lab. Students will have one week to read the paper and answer associated questions. Students must submit their answers to the questions no later than one hour before the start of lab and arrive at lab prepared for discussion. Twice during the semester, each student will present a short discussion related to an assigned article.

Technique assignments
Each week a technique(s) will be presented through a lesson and/or videos. Students will be expected to sequence these methods and complete related assignments.

Exams
There will be two, non-cumulative exams which will consist of multiple choice, fill in, and short answer questions that require the ability to identify species; the ability to sequence, apply, and trouble-shoot techniques; and a critical understanding of the papers that were discussed in class.

Grades:
Final course grades will be determined by points accumulated for each of the assessments. Rubrics and point values for each of the assessments will be made available at the beginning of the semester.
There will be no extra credit (no exceptions).
Final grades will be based on the following distribution.

Final grade	Final average
A	90.00 – 100.00
B+	87.00 – 89.99
B	80.00 – 86.99
C+	77.00 – 79.99
C	70.00 – 76.99
D	60.00 – 69.99
F	0 – 59.99

Special needs: Students who require special accommodations and support services should contact the Office of Disability Services and the instructor during the first week of class.

Academic Integrity Policy
Dishonesty will not be tolerated in this course. Please see the Rutgers policy at http://nbacademicintegrity.rutgers.edu/home-2/academic-integrity-policy/

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STUDENT-WELLNESS SERVICES

If you need help, there many services available at the university to provide assistance.

Just In Case Web App

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884

rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181

vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800

https://ods.rutgers.edu/

The Office of Disability Services works with students with a documented disability to determine the eligibility of reasonable accommodations, facilitates and coordinates those accommodations when applicable, and lastly engages with the Rutgers community at large to provide and connect students to appropriate resources.

Scarlet Listeners

(732) 247-5555

http://www.scarletlisteners.com/

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.