Syllabus for
BIO 410 - Medical Parasitology Lecture
3.0 Credit Hours
Fall 2022

I. COURSE DESCRIPTION

Parasitology is specifically design to introduce biology and nursing majors to medical parasitology. Emphasis is place on life cycles, pathology, modes of transmission, prevention and treatment, and the identification of diagnostic stages of medically important parasites. Discussion of procurement, handling, and preparation of clinical specimens for laboratory analysis will be discussed as time permits.

Prerequisites: Student must be biology major or minor, pre-medicine, international community development, global environmental sustainability or nursing or have permission of the instructor.

II. COURSE GOALS

According to the World Health Organization, five of the top six fatal diseases in the world have a parasitological etiology. (Heart disease and cancer rank low from a world perspective – the majority of people do not live long enough to suffer from these conditions.)

ORU is committed to preparing students to participate as members of medical mission teams who will go throughout the world in an attempt to bring the very best in prayer, medicine and relief to the sick and suffering. A major goal of this course, therefore, is to prepare students to recognize the global severity of parasitological disease, and to train them to educate their fellow team members and the people they minister to as to the causes, prevention, treatments and cures for these diseases.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

As a result of successfully completing this course, the student will be able to do the following:

A. Describe the life cycles for the major medically important parasites.
B. Identify the diagnostic stages of the major medically important parasites.
C. Describe the modes of transmission of the major medically important parasites.
D. Describe the pathology of the major medically important parasites.
E. Describe the best prevention and treatment of the major medically important parasites.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

Required Source:
CDC website: http://www.cdc.gov/parasites/

Clinical Parasitology. A practical approach. 2nd Edition. Selma Kaszczuk, Elizabeth A. Zeibig Elsevier - Health Sciences Division.

Optional source:

John, D., Petri, W. 2006. Medical Parasitology. 9th Edition. ISBN: 978-0-7216-4793-7.

Additional Parasitology textbooks and atlases:

Bogitsh, Burton J. (Burton Jerome), 2005. Human Parasitology. Elsevier Academic Press; Burlington, MA.

Bogitsh, Burton J. (Burton Jerome), 2013. Human Parasitology. Academic Press, Amsterdam, Boston.

Garcia, Lynn Shore, 2007. Diagnostic Medical Parasitology. ASM Press; Washington, DC.

Garcia, Lynne Shore, 2009. Practical Guide to Diagnostic Parasitology. ASM Press; Washington, DC.

Gillaspy, SH and PM. Hawkey . 1995. Medical Parasitology: A Practical Approach. IRL Press at Oxford University Press; Oxford; New York.

Gockel-Blessing, Elizabeth A., 2013. Clinical Parasitology: A Practical Approach. Elsevier Saunders, St. Louis, MO.

Heelan, Judith Stephenson, 2002. Essentials of Human Parasitology. Delmar; Albany, NY.

Loker, Eric S. and Hofkin, Bruce V. Parasitology: A Conceptual Approach. ISBN: 978-0-8153-4473-5. Garland Science, Taylor and Francis Group; New York and London.

Mullen, G.R. and Durden, L.A., 2019. Medical and Veterinary Entomology. Academic Press; Boston. Elsevier; Amsterdam.

Ridley, John W., 2012. Parasitology for Medical and Clinical Laboratory Professionals. Delmar; Clifton Park, NY.

V. POLICIES AND PROCEDURES

A. University Policies and Procedures

1. Students and faculty at Oral Roberts University must adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, electronic, video, multimedia, or computer software. Plagiarism and other forms of cheating involve both lying and stealing and are violations of ORU's Honor Code: "I will not cheat or plagiarize; I will do my own academic work and will not inappropriately collaborate with other students on assignments." Plagiarism is usually defined as copying someone else's ideas, words, or sentence structure and submitting them as one's own. Other forms of academic dishonesty include (but are not limited to) the following:
    a. Submitting another's work as one's own or colluding with someone else and submitting that work as though it were his or hers;
    b. Failing to meet group assignment or project requirements while claiming to have done so;
    c. Failing to cite sources used in a paper;
    d. Creating results for experiments, observations, interviews, or projects that were not done;

e. Receiving or giving unauthorized help on assignments.
By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.

2. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.

3. Students are to be in compliance with University, school, and departmental policies regarding the Whole Person Assessment requirements. Students should consult the Whole Person Assessment handbooks for requirements regarding general education and the students' majors.
   a. The penalty for not submitting electronically or for incorrectly submitting an artifact is a zero for that assignment.
   b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B. Course Procedures

1. Evaluation

2 Exams – 50 pts. each	100
Quizzes, articles, assignments, etc.	100
Comprehensive final exam	100
TOTAL	750

Grades will be assigned as follows:

Letter Grade	Percent
A	90-100
B	80-89
C	70-79
D	60-69
F	59 and below

2. Other Information
   a. Periodic quizzes, scientific article reviews, and assignments will be assigned throughout the semester.
   b. Each student will be required to present at least one article to the class.

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3. Attendance and Makeup Work
   a. There are no automatic excused absences except for administratively excused absences or serious medical illness. Students claiming an administrative excuse must present a note signed by the dean authorizing the absence to the instructor. Medical illness must be documented by a licensed health professional.
   b. Late Work
   It is expected that all work will be completed and submitted on time. Unexcused absences and tardies will not be tolerated. Quizzes will not

be given to students who are late to class or absent, unless they are due to an administrative-excused absence or serious medical illness.

c. Unexcused absences mean that work missed counts as zero. Excused absences mean that the student may make up missed work in a reasonable length of time (to be determined by the instructor).

4. ePortfolio Requirements None

VI. COURSE CALENDAR:
The faculty reserves the right to make changes to the calendar.

WEEK	TOPICS
1	Introduction to parasitology
2	Specimen collection and processing
3	The Amoebas
4	Exam, The Amoebas
5	The Flagellates
6	The Hemoflagellates
	FALL BREAK
7	Plasmodium and Babesia
8	Exam, Plasmodium and Babesia
9	Nematodes
10	The Filariae
11	Cistodes
12	Trematodes
13	Arthropods
	FINAL EXAM

Primary Program: Biology (B.S.)
Parasitology Lecture – BIO 410
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This course contributes to the University and program outcomes as indicated below:
Significant Contribution – Addresses the outcome directly and includes targeted assessment.
Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.
Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.

OUTCOMES	Significant Contribution	Moderate Contribution	Minimal Contribution
Spiritual Integrity			
Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.			**X**
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.			**X**
Personal Resilience			
Prepare our students for entry into graduate programs or health programs.		**X**	
Intellectual Pursuit			
Equip students to scientifically investigate biological based problems and communicate their research to the scientific community.			**X**
Program outcome 2: Educate students to be knowledgeable of current biological trends, concepts, and facts.		**X**	
BIO 457: Demonstrate a comprehensive and practical understanding of basic immunological principles involved in research and clinical/applied science.			
BIO 457: Differentiate between innate and adaptive immunity			
BIO 457: Identify the role of antigen presenting cells, lymphocytes, and phagocytic cells in immune responses			
BIO 457: Differentiate between humoral and cell mediated immunity.			
Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.			**X**
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.			**X**
Global Engagement			
Program outcome 3: Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.		**X**	
F. Discuss current immunology news and issues.		**X**	
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.		**X**	
BIO 457: Explain the mechanisms and differences between primary and		**X**	

secondary responses and their relevance to immunizations.			

Bold Vision			
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.			**X**