

MMBB 463/563 Molecular Parasitology

Time and Place:

MW F 8:30- 9:30; Life Sciences South 163

Instructor:

Gustavo Arrizabalaga, PhD
Office LSS 145
Email: Gustavo@uidaho.edu

Office hours:

Tuesdays 10:00 am -11:00 am or by appointment

Objectives:

This course will explore the cellular and molecular mechanisms utilized by parasites to interact with their host. In specific it will address the life cycles, parasite-host interactions and pathogenesis of various human parasites. During this survey course, basic biological processes such as gene regulation, molecular development, molecular evolution and cell-cell interactions will be revisited in the context of parasitology. A variety of parasites will be discussed, each to emphasize a particular aspect of parasitology.

Exams:

There will be three exams during the year, each covering the material in a portion of the lectures. The exams will be based on the material covered during class and will be closed books. The lecture notes, your class notes and the required readings should be sufficient to study for the exams. The material covered in student presentations will also be part of the test. Exams will be one hour long. Nevertheless, to provide more time, exams will be available at 8:00 am the day of the exam. You are free to come at the scheduled time (8:30 am) but the exam will end at 9:20am. **There will be no retests, no extra credit or dropped exams.**

Grade:

All three exams will be counted equal. The final grade will be based on the average of the three exams and be based on a normal curve. For graduate students each of the 3 exams will count for 25% of the grade, the other 25% will come from the graduate presentations.

Graduate Students presentations:

Students taking the class for graduate level credit will prepare a presentation on a topic pertaining to parasites. I will meet with the students in advance to decide the topic and format of the presentation. This presentation will be graded and it will count for 25% of the final grade.

Class ethics

Plagiarism and cheating as defined in the UI student manual are not acceptable. First time will result in a 0 in your exam, second time will be grounds for a failing final grade.

Graphic material warning

Given the subject of the class, some of the class material will consist of graphic pictures and videos of patients suffering from parasite infections. These pictures are shown to convey the seriousness of the illnesses associated with the microbes discussed in class and not to entertain. Please keep in mind that these are real diseases and real patients, so be respectful during the lectures. If the pictures are too bothersome please let me know and I will try to accommodate your concerns.

Text Book:

There is a recommended book available in the bookstore:

Foundations of Parasitology, Roberts and Janovy, Seventh Edition. Available at the bookstore.

A copy of this book is on reserve at the library.

While this book is not required it might be helpful as a resource to clarify the material covered in class.

All required readings will be handed out in class or posted on the web.

Class Web Site:

All lecture presentations and readings will be posted in the website. Lecture Powerpoints will be posted 2-3 days in advance. I will provide the handouts for the first 2 lectures. After those lectures you can print the presentation in advance from the website.

<http://www.ag.uidaho.edu/mmbb/gustavo/mmbb404/index.asp>

Login: mmbb404

Password: parasite

Class announcements

Any announcement made in class concerning changes in the schedule, correction to the material presented or homework will be posted in the website. You are responsible for keeping abreast of these changes by coming to class or periodically checking the website. Major changes will always be posted a week in advance.

Class schedule

The following is a tentative schedule of the topics to be covered in class. The exam dates are the only fixed items in this schedule the rest can change depending on how the lectures go. I am purposely leaving unscheduled dates to leave room for extra topics and invited speakers. Please feel free to suggest topics you want covered.

Wed Jan 11 Introduction

Fri Jan 13 Introduction to parasitology and the eukaryotic cell

Mon	Jan 16	MLK DAY NO CLASS
Wed	Jan 18	Trypanosoma Brucei: Introduction
Fri	Jan 20	Trypanosoma Brucei: Cell biology
Mon	Jan 23	Trypanosoma Brucei: Gene expression
Wed	Jan 25	Trypanosoma Brucei: Antigenic variation
Fri	Jan 27	Trypanosoma Brucei: Antigenic variation 2
Mon	Jan 30	Trypanosoma Brucei: Lytic factor
Wed	Feb 1	Trypanosoma cruzi: introduction and pathogenesis
Fri	Feb 3	T. cruzi: detection
Mon	Feb 6	T. cruzi: invasion
Wed	Feb 8	Leishmania: Introduction
Fri	Feb 10	Leishmania: Living inside the phagolysosome
Mon	Feb 13	Graduate Student presentation Genomic analysis of Trypanomastids
Wed	Feb 15	RNA editing
Fri	Feb 17	TBA
Mon	Feb 20	PRESIDENT'S DAY, NO CLASSES
Wed	Feb 22	Exam 1
Fri	Feb 24	Plasmodium: Introduction, Epidemiology

Mon	Feb 27	Plasmodium: cytoadherence and variable genes
Wed	March 1	Plasmodium: variable genes molecular mechanism
Fri	March 3	Plasmodium: Chloroquine resistance and hemoglobin digestion
Mon	March 6	Plasmodium: Vaccine design
Wed	March 8	Student presentation: human adaptation to malaria
Fri	March 10	Toxoplasma: introduction and molecular genetics
Mon	March 13	SPRING BREAK
Wed	March 15	SPRING BREAK
Fri	March 17	SPRING BREAK
Mon	March 20	Toxoplasma: Getting in and around
Wed	March 22	Toxoplasma: apicoplast and drug action
Fri	March 24	Toxoplasma: organellar proteomics
Mon	March 27	EXAM #2
Wed	March 29	Coccidians
Fri	March 31	Giardia
Mon	April 3	Student presentation: Trychomonas and the hydrogenosome
Wed	April 5	TBA
Fri	April 7	Student presentation: RNAi in parasitology

Mon	April 10	Entamoeba
Wed	April 12	Trichenella
Fri	April 14	Schistosomiasis
Mon	April 17	Schistosomiasis
Wed	April 19	Filaria
Fri	April 21	Filaria
Mon	April 24	TBA
Wed	April 26	Exam 3
Fri	May 1	DEAD WEEK
Mon	May 3	DEAD WEEK
Wed	May 5	DEAD WEEK