Micro 5147: Eukaryotic Pathogens

Instructor: Chad Rappleye
Biological Sciences 540
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Class: T & Th 2:20 pm – 3:40 pm
Location: Campbell Hall 335
Office Hrs: by appointment and after class

Course Description

This course will discuss the major eukaryotic pathogens of medical importance with a primary emphasis on unicellular fungal and parasite pathogens that cause disease in humans. The course will focus on molecular mechanisms of pathogenesis, pathogen modulation of the host immune response, and diagnostics/therapeutics development. Although some background in immunology is helpful, such is not a pre-requisite. We will cover essential immunological principles in the first weeks of class. There is no textbook for the class, but books on immunology and microbial pathogens will be placed on reserve at the library for students desiring additional material. As this is an upper division class, we will emphasize and discuss experimental data from scientific literature, including critical evaluation of primary data and an understanding of the implications of the results. Student participation during class discussions is expected.

Lecture slides will be posted for students before class to facilitate note taking, but lectures are not recorded. Additional help and information can be obtained via email for simple questions/clarifications or through office hours. Office hours are scheduled by contacting the instructor to arrange a time and the appointment can be conducted via zoom or in-person.

Grading

60%	63%	67%	70%	73%	77%	80%	83%	87%	90%	93%
D-	**D**	**D+**	**C-**	**C**	**C+**	**B-**	**B**	**B+**	**A-**	**A**

Grades will be determined by a student's performance on topic quizes and problem sets, two exams (midterm and final) and two group projects/presentations. Percentages will be based on normalizing raw scores to the high score on each test/assignment. In-class participation may be used at the instructor's discretion in assigning final grades to students near grade division borders.

Topic Quizes	(approx. weekly)	5%
Section Problems	(approx. weekly)	10%
Project 1:	(Sep 8, 2:20 pm)	10%
Midterm:	(Oct 18, 2:20 pm)	25%
Project 2:	(Nov 8 – Nov 22)	20%
Final:	(Dec 9, 4:00 pm)	30%

Topic Quizes and Questions

Section Topic Quizes measure a student's basic knowledge of the fundamental information. They are primarily designed to give students a perspective on their understanding of previous lecture material. The quizzes will be administered approximately weekly at the beginning of class utilizing "Socrative," an on-line polling application which can be accessed by students via phone/tablet/laptop. If a student is unable to access the quiz, an alternative method will be provided.

Section Problems are designed to help students develop critical thinking skills, familiarity with primary data, and the ability to apply information learned in class. The problems are similar to the types of questions asked on the midterm and final exams and are thus good practice to the format and type of thinking required. The problems will be administered via CANVAS after the completion of a topic or section of the class.

Group Projects

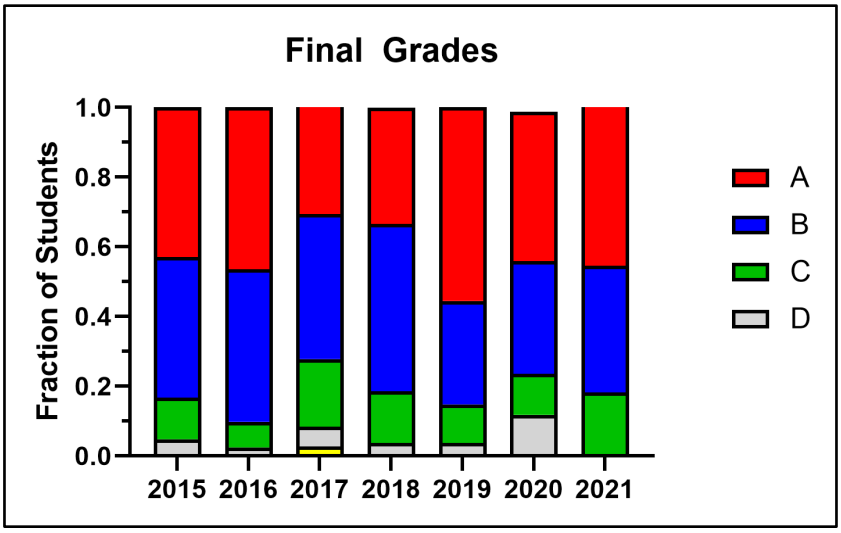
Students will be placed into groups of 3-4 people. Project #1 will be based around host defense evasion strategies and will entail presentation of ideas to the class. Project #2 will be focused on a primary research article selected from the literature. Groups will compose a written analysis and present a 20-30 minute summary and discussion of the paper's findings. Individual groups will present during the last half of the course at which time the written report will be due.

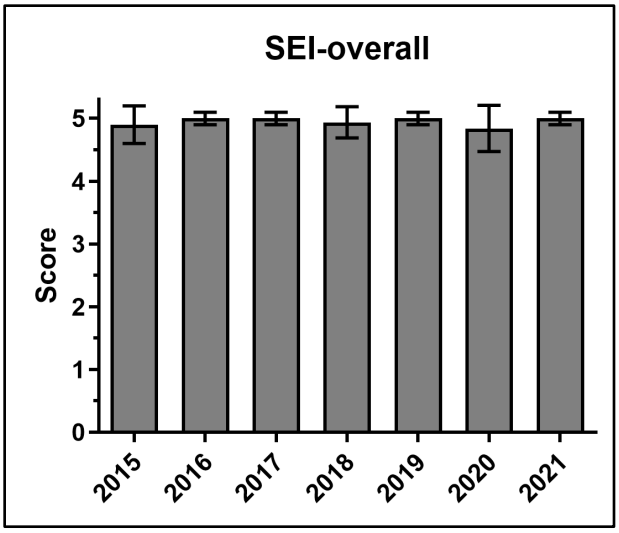
2022 Schedule

Aug 23	(T)	Innate Immune Defenses		Oct 20	(Th)	Midterm review
Aug 25	(Th)	Innate Immune Defenses		Oct 25	(T)	*Entamoeba*
Aug 30	(T)	Adaptive Immune Defenses		Oct 27	(Th)	*Trypanosomes*
Sep 1	(Th)	Fungal Pathogenesis		Nov 1	(T)	*Trypanosomes*
Sep 6	(T)	*Candida*		Nov 3	(Th)	*Leishmania*
Sep 8	(Th)	PROJECT 1		Nov 8*	(T)	*Leishmania*
Sep 13	(T)	*Candida*		Nov 10*	(Th)	*Toxoplasma*
Sep 15	(Th)	*Candida*		Nov 15*	(T)	*Toxoplasma*
Sep 20	(T)	*Aspergillus*		Nov 17*	(Th)	*Plasmodium*
Sep 22	(Th)	*Aspergillus*		Nov 22*	(T)	*Plasmodium*
Sep 27	(T)	*Cryptococcus*		Nov 24	(Th)	(no class – Thanksgiving Break)
Sep 29	(Th)	*Cryptococcus*		Nov 29	(T)	*Plasmodium*
Oct 4	(T)	*Histoplasma*		Dec 1	(Th)	Parasite Diagnostics & Therapeutics
Oct 6	(Th)	*Blastomyces & Coccidioides*		Dec 6	(T)	Review Session for final exam
Oct 11	(T)	Fungal Diagnostics/Therapeutics				
Oct 13	(Th)	(no class – Autumn Break)				
Oct 18	(T)	MIDTERM EXAM (2:20 pm)		Dec 9	(F)	FINAL EXAM (4:00 pm)

* Project 2 Presentations

Course History





Typically 40% to 50% of the class receive As as their final grade

Academic Integrity Statement

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute "Academic Misconduct."

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an "excuse" for academic misconduct.

Making copies and/or dissemination of question and examination materials outside the current class is not allowed.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University. Committee on Academic Misconduct: oaa.osu.edu/coam/home.html

Required College Diversity Statement

The Department of Microbiology promotes a welcoming and inclusive environment for all students and staff, regardless of race, gender, ethnicity, national origin, disability or sexual orientation. There is no tolerance for hateful speech or actions. All violations of this policy should be reported to the OSU Bias Assessment and Response Team (BART, studentaffairs.osu.edu/bias).

The Department encourages diversity at all levels, particularly among the next generation of scientists. Students are encouraged to participate in organizations that provide support specifically for science and engineering students who are African-American, Asian, disabled, Hispanic, LGBTQ or women. These organizations are listed on the Colleges of Arts and Sciences (artsandsciences.osu.edu/stem-organizations) and Engineering (engineering.osu.edu/studentorgs) web sites.