MICRBIOL 5147: Eukaryotic Pathogens

Instructor: Chad Rappleye
Biological Sciences 540
rappleye.1@osu.edu

Class: T & Th 2:20 pm – 3:40 pm
Location: Lazenby Hall 034
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. 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 quizzes and problem sets, two exams (midterm and final) and two group projects/presentations. Grades 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 Quizzes	(approx. weekly)	5%
Section Problems	(approx. weekly)	15%
Project 1:	(Sep 9, 2:20 pm)	5%
Project 2:	(Nov 6 – Dec 4)	20%
Midterm:	(Oct 21, 2:20 pm)	25%
Final:	(Dec 12, 4:00 pm)	30%

Topic Quizzes and Questions

Section Topic Quizzes measure a student's basic knowledge of the fundamental information. They are an easy set of points and are primarily designed to give students a perspective on their understanding of previous lecture material. The quizzes will be administered approximately weekly via Carmen after the respective section is complete.

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 section problems, not the topic quizes, are similar to the types and format 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 Carmen 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.

2025 Schedule

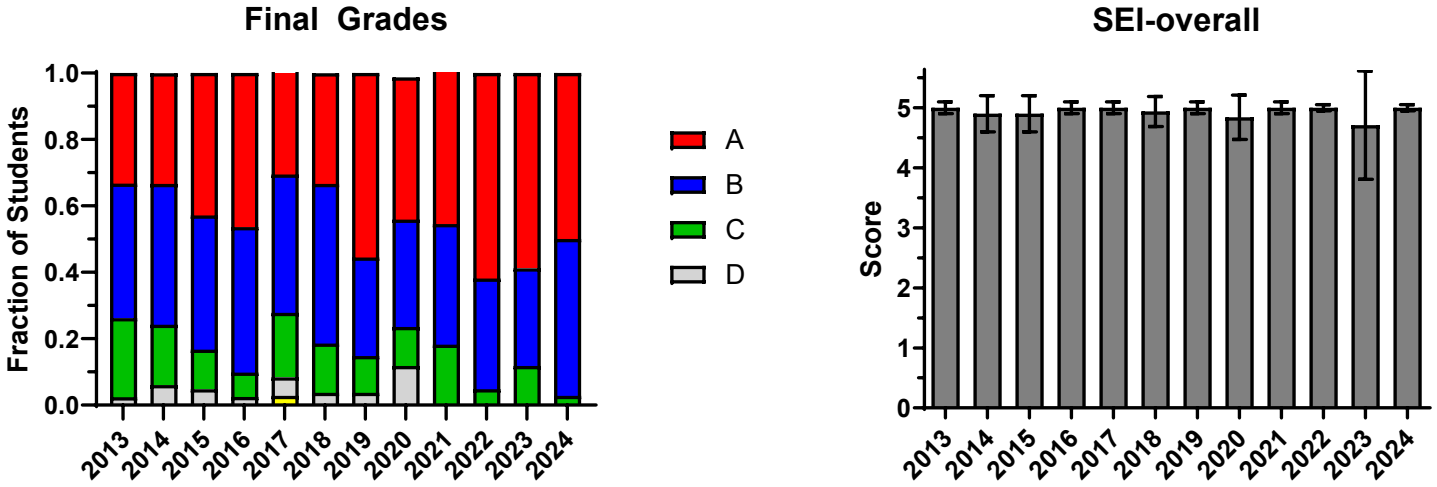
Aug 26	(T)	Innate Immune Defenses		Oct 23	(Th)	Midterm review
Aug 28	(Th)	Innate Immune Defenses		Oct 28	(T)	*Entamoeba*
Sep 2	(T)	Adaptive Immune Defenses		Oct 30	(Th)	*Trypanosomes*
Sep 4	(Th)	Fungal Pathogenesis		Nov 4	(T)	*Trypanosomes*
Sep 9	(T)	PROJECT 1		Nov 6*	(Th)	*Leishmania*
Sep 11	(Th)	*Candida*		Nov 11	(T)	(no class – Veterans Day)
Sep 16	(T)	*Candida*		Nov 13*	(Th)	*Leishmania*
Sep 18	(Th)	*Candida*		Nov 18*	(T)	*Toxoplasma*
Sep 23	(T)	*Aspergillus*		Nov 20*	(Th)	*Toxoplasma*
Sep 25	(Th)	*Aspergillus*		Nov 25*	(T)	*Plasmodium*
Sep 30	(T)	*Cryptococcus*		Nov 27	(Th)	(no class – Thanksgiving Break)
Oct 2	(Th)	*Cryptococcus*		Dec 2*	(T)	*Plasmodium*
Oct 7	(T)	*Histoplasma*		Dec 4*	(Th)	*Plasmodium*
Oct 9	(Th)	*Blastomyces & Coccidioides*		Dec 9	(T)	Parasite Diagnostics & Therapeutics
Oct 14	(T)	Antifungals & Diagnostics		Dec 10	(W)	Review Session for final exam
Oct 16	(Th)	(no class-Autumn Break)		Dec 12	(F)	FINAL EXAM (4:00 pm)
Oct 21	(T)	MIDTERM EXAM (2:20 pm)				

* Project 2 Presentations

Should in-person classes be canceled, I will notify you as to which alternative methods of teaching will be offered to ensure continuity of instruction for this class. Communication will be via Carmen/Canvas.

Course History

Typically 30-40% of the class receive As as their final grade



College of Arts & Sciences Policies:
https://ugeducation.osu.edu/academics/syllabus-policies-statements/standard-syllabus-statements

- **Academic Misconduct**
- **Artificial Intelligence and Academic Integrity**
- **Religious Accommodations**
- **Disability Services**
- **Intellectual Diversity**
- **Grievances and Solving Problems**
- **Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct**
- **Academic Integrity Statement**