

# MICRBIOL 5147: Eukaryotic Pathogens

Instructor: Chad Rappleye  
Biological Sciences 540  
[rappleye.1@osu.edu](mailto: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 5, 2:20 pm)	5%
Project 2:	(Nov 7 - Nov 26)	20%
Midterm:	(Oct 15, 2:20 pm)	25%
Final:	(Dec 6, 4:00 pm)	30%

## Topic Quizzes and Questions

Section Topic Quizzes 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 free 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.

## 2024 Schedule

Aug 20	(T)	Innate Immune Defenses	Oct 17	(Th)	Midterm review
Aug 22	(Th)	Innate Immune Defenses	Oct 22	(T)	<i>Entamoeba</i>
Aug 27	(T)	Adaptive Immune Defenses	Oct 24	(Th)	<i>Trypanosomes</i>
Aug 29	(Th)	Fungal Pathogenesis	Oct 29	(T)	<i>Trypanosomes</i>
Sep 3	(T)	<i>Candida</i>	Oct 31	(Th)	<i>Leishmania</i>
Sep 5	(Th)	PROJECT 1	Nov 5	(T)	<i>Leishmania (asynchronous lecture)</i>
Sep 10	(T)	<i>Candida</i>	Nov 7*	(Th)	<i>Toxoplasma</i>
Sep 12	(Th)	<i>Candida</i>	Nov 12*	(T)	<i>Toxoplasma</i>
Sep 17	(T)	<i>Aspergillus</i>	Nov 14*	(Th)	<i>Plasmodium</i>
Sep 19	(Th)	<i>Aspergillus</i>	Nov 19*	(T)	<i>Plasmodium</i>
Sep 24	(T)	<i>Cryptococcus</i>	Nov 23*	(Th)	<i>Plasmodium</i>
Sep 26	(Th)	<i>Cryptococcus</i>	Nov 26*	(T)	Parasite Diagnostics & Therapeutics
Oct 1	(T)	<i>Histoplasma</i>	Nov 28	(Th)	(no class – Thanksgiving Break)
Oct 3	(Th)	<i>Blastomyces &amp; Coccidioides</i>	Dec 3	(T)	Review Session for final exam
Oct 8	(T)	Antifungals & Diagnostics	Dec 6	(F)	FINAL EXAM (4:00 pm)
Oct 10	(Th)	(no class-Autumn Break)			
Oct 15	(Th)	MIDTERM EXAM (2:20 pm)			

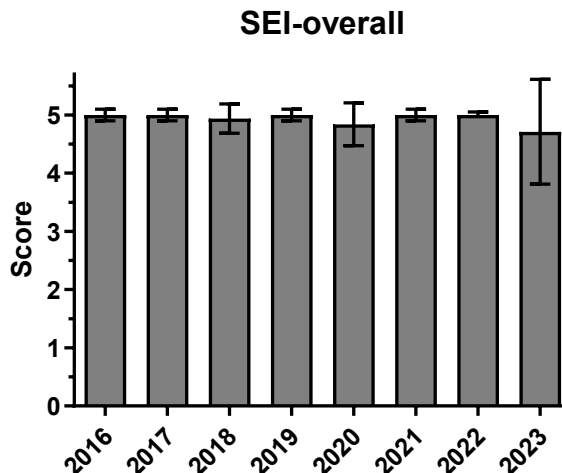
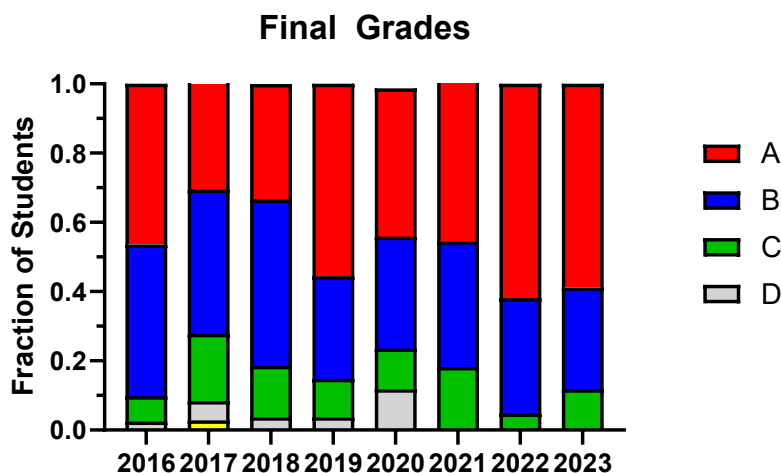
\* Project 2 Presentations

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.

Note: The Nov 5 lecture will be recorded and viewed asynchronously to allow students to participate in the 2024 voting process

## Course History

Typically 30-40% 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.

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in

connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

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](http://oaa.osu.edu/coam/home.html)

## **Disability Services**

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the Safe and Healthy Buckeyes site for resources. Beyond five days of the required COVID-19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them at [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; or [slds.osu.edu](http://slds.osu.edu).

## **Religious Accommodations**

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend

or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Office of Institutional Equity.

## **Diversity Statement**

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.