

Clinical Microbiology
MMBio 407
Fall 2025, Credit Hours: 5.0
12:30-2:50pm MW, TTh 8-9:50am
LSB 2055 & LSB 2038

Instructor: Mary F. Davis, PhD,
MLS(ASCP)^{CM}
Office: 3129 LSB

Office Phone: 801-422-6207
Email: mary_davis@byu.edu
Office Hours: TTh 10-11am

Assistant Instructor: Elena Molina
MLS(ASCP)^{CM}
Office: 2134 LSB

Office Phone: 801-422-5314
Email: elena.molina@byu.edu

Prerequisites: Accepted into the MLS Program

Materials

- Bailey & Scott's Diagnostic Microbiology 15th or 16th edition by Patricia M. Tille (**required**)
- Laboratory Study Guide (**required**)
- black permanent marker (**required**)
- pencil (**required**)

Course Purpose

Gain familiarity with medically important bacteria and fungi by performing the range of clinical laboratory tests in microbiology and play a role in the development and evaluation of test systems and interpretive algorithms. Identify and resolve preanalytical, analytical, and post-analytical microbiology testing issues.

Assessment Breakdown

Assessments	Points
Weekly Lecture Quizzes	12 x ~50 = ~600
Group Meetings	4 x 10 = 40
Homework Assignments	12 x ~10 = ~120
Laboratory Assignments	12 x ~20 = ~240
Mid Term Practical Exam	120
Mid Term Written Exams	250
Final Practical Exam	120
Final Written Exam	180
Total	~1670

Assignment Descriptions

The quizzes consist of multiple choice and matching questions. Psychomotor skills will be assessed each week in laboratory assignments. Weekly quizzes will be given in class or on LearningSuite—no resources can be used for any quiz or exam. The lowest lecture quiz score will be dropped for each individual before calculating the final grade.

The first midterm written exam will be given **in class on Wednesday, October 1st**. The second midterm written exam will be given **in class on Wednesday, October 29th**. The final written exam will be given **in class on Saturday, December 13th 11am-2pm**.

Practical exams will be given in the laboratory, Monday through Friday, on the dates listed in the schedule. *These dates cannot be adjusted.*

Students will be assigned groups to meet with regularly throughout the semester. Groups are required to meet once per month for at least one hour and include discussion about prompts provided. Other than the prompts, groups may determine what is the best use of the time for them. Students will report each month.

Students will be given homework assignments based on the textbook. Submitted work should be the product of only the student. Assignments are due before class on Wednesday unless otherwise stated in class, on LearningSuite, or by email.

Laboratory Attendance

Laboratory attendance is required. If a student is unable to attend a lab, the student must notify Dr. Davis by email or in person *prior* to the lab. A student will not be eligible to pass the course if more than two units are missed. A maximum of one lab may be missed per unit (generally a unit is one week in length) for a student to receive credit. If two or more absences are missed for a unit, the student may be allowed to make up points for a maximum of one unit. Due to the nature of the laboratory assignments, not all labs are eligible for make-up points.

Laboratory Precautions

The laboratory experience will include students working with pathogenic bacteria and fungi. Each student is to strictly follow the protocols set forth and the instructions given by the lab instructors. Additionally, student desk space should always be cleaned with desk swab at the beginning and the end of each laboratory session. Students are to wear appropriate PPE during class time and must wash their hands before leaving the laboratory. If not followed, students will lose points on their laboratory assignments.

Inappropriate Use of Course Materials

All course materials (e.g., outlines, handouts, syllabi, exams, quizzes, PowerPoint presentations, lectures, audio and video recordings, etc.) are proprietary. Students are prohibited from posting or selling any such course materials without the express written permission of the professor teaching this course. To do so is a violation of the Brigham Young University Honor Code. These policies continue indefinitely (not limited to the duration of the semester or term you take this course).

Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and every instructor's expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Students Disability

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. A disability is a physical or mental impairment that substantially limits one or more major life activities. Whether an impairment is substantially limiting depends on its nature and severity, its duration or expected duration, and its permanent or expected permanent or long-term impact. Examples include vision or hearing impairments, physical disabilities, chronic illnesses, emotional disorders (e.g., depression, anxiety), learning disorders, and attention disorders (e.g., ADHD). If you have a disability which impairs your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 801-422-2767 to request a reasonable accommodation. The UAC can also assess students for learning, attention, and emotional concerns. If you feel you have been unlawfully

discriminated against on the basis of disability, please contact the Equal Opportunity Office at 801-422-5895, eo_manager@byu.edu, or visit <https://hrs.byu.edu/equal-opportunity> for help.

Preventing & Responding to Sexual Misconduct

The health and well-being of students is of paramount importance at Brigham Young University. If you or someone you know has experienced sexual harassment (including sexual violence), there are many resources available for assistance.

In accordance with Title IX of the Education Amendments of 1972, BYU prohibits unlawful sex discrimination, including sexual harassment, against any participant in its education programs or activities. The university also prohibits sexual harassment by its personnel and students. Sexual harassment occurs when

- a person is subjected to unwelcome sexual speech or conduct so severe, pervasive, and offensive that it effectively denies their ability to access any BYU education program or activity;
- any aid, benefit, or service of BYU is conditioned on a person's participation in unwelcome sexual conduct; or
- a person suffers sexual assault, dating violence, domestic violence, or stalking on the basis of sex.

University policy requires all faculty members to promptly report incidents of sexual harassment that come to their attention in any way, including through face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Incidents of sexual harassment should be reported to the Title IX Coordinator at t9coordinator@byu.edu or (801) 422-8692 or 1085 WSC. Reports may also be submitted online at <https://titleix.byu.edu/report> or 1-888-238-1062 (24-hours a day).

BYU offers confidential resources for those affected by sexual harassment, including the university's Sexual Assault Survivor Advocate, as well as a number of non-confidential resources and services that may be helpful. Additional information about Title IX, the university's [Sexual Harassment Policy](#), reporting requirements, and resources can be found at <http://titleix.byu.edu> or by contacting the university's Title IX Coordinator.

Mental Health

Mental health concerns and stressful life events can affect students' academic performance and quality of life. BYU Counseling and Psychological Services (CAPS, 1500 WSC, 801-422-3035, caps.byu.edu) provides individual, couples, and group counseling, as well as stress management services. These services are confidential and are provided by the university at no cost for full-time students. For general information please visit <https://caps.byu.edu>; for more immediate concerns please visit <http://help.byu.edu>.

Additional Policies

Additional BYU policies and guidelines can be found at <https://teaching.byu.edu/syllabus-statements>.

Changes to the syllabus

The course as outlined in this syllabus is subject to change at the sole discretion of the professor. Students will be notified of any changes in grading or policies by LearningSuite, email, or in class.

Fall 2025 Schedule

Weekly quizzes will be given at the start of lab on Thursday, unless otherwise discussed in class. The comprehensive written final exam will be given in class **Saturday 13th 11am-2pm**. The comprehensive practical exam will extend from **December 1st to 5th**.

Week	Date	Lecture	Lab	Reading	Homework topic
1	3-Sep	Gram Positive Cocci	Gram Positive Cocci	Ch. 13, 14	Diagnostic Immunology
2	8-Sep	Gram Positive Bacilli	Gram Positive Cocci	Ch. 15-18	Virulence Factors; Antibiotic susceptibility
		Gram Negative Cocci	Gram Positive Bacilli		
3	15-Sep	Gram Negative Bacilli: <i>Enterobacteriaceae</i>	Gram Negative Bacilli— <i>Enterobacteriaceae</i>	Ch. 19	Unique media/tube tests
4	22-Sep	Fastidious Gram Negative Coccobacilli	Gram Negative Cocci	Ch. 20-25,28-39	Unique media, chart on MAC, oxidase
		Gram Negative Bacilli: Nonfermenters and others	Gram Negative Coccobacilli		
5	29-Sep	Review	Gram Negative Bacilli— miscellaneous		Midterm review
		Written midterm I			
6	6-Oct	Mycology: yeast and molds	Practice practical midterm	Ch. 58-63	Mycology media
7	13-Oct	Obligate intracellular and unculturable bacteria	Practical midterm	Ch. 42-45	
		Mycoplasma			
		Spirochetes			
8	20-Oct	Anaerobic bacteria	Wounds	Ch. 40-41, 75	Wound pathogens by site chart
		Skin, Soft Tissue, Wounds			
9	27-Oct	Respiratory tract	Respiratory tract	Ch. 68,69,72	
		Written midterm II			
10	3-Nov	GI tract	GI tract	Ch. 74	GI unique media, pathogen biochem table
			Urinary tract		
11	10-Nov	Urinary Tract	Sterile sites	Ch. 67,70,71,76	HACEK
		Genital System			
12	17-Nov	Bloodstream, CSF, body fluids Quality in the clinical microbiology laboratory	Total body review	Ch. 77	Identify QC organisms for tests
13	24-Nov	Case studies	No lab	Ch. 58-60	Case studies
14	1-Dec	Technology Advancements	Comprehensive Practical Exam	Ch. 45	
15	8-Dec	Case studies	Molecular techniques	Ch. 53	Final exam review
			Technology Advancements		