

MEDICAL MICROBIOLOGY 2010-2011

In the event of a major campus or community emergency, all the information in this syllabus is subject to revision that may be necessitated by changes in the school calendar, facility access, or other circumstances beyond the course director's control.

COURSE GOALS

Medical Microbiology seeks to empower students with knowledge and ability to promote human health. Mastery of the topics introduced in this course will help students act positively to create and maintain a healthy world during their future careers.

In this challenging course, faculty will engage student interest in medicine by presenting basic principles of infection and immunity and linking them to applications in clinical practice. Students will first examine how our immune systems develop and function to protect us from the countless dangers we encounter daily, including microbial pathogens and malfunctioning, aging, and cancerous human cells. In subsequent sections, students investigate the behavior of a wide variety of microbes that comprise the great diversity of life on Earth, including bacteria, fungi, and viruses. Students will learn how these organisms work, their pathogenic mechanisms, and preventative and therapeutic strategies to reduce diseases they cause. A strong foundation in the microbiological sciences will foster the ability to solve future emerging infectious disease problems, both locally and in the global arena.

The faculty also wish to instill in students the love for learning, the ability to think for themselves, the desire to use knowledge creatively for the benefit of all people, and the appreciation of the beauty found in the natural world that we all share.

COURSE CONTACTS

Students should contact the course director with questions about course content, administration, and examinations. The course director may respond directly, post the question to the course newsgroup, or refer the question to another faculty member as appropriate. The academic coordinator will address web site and resource access issues.

Students are advised that although faculty endeavor to respond to questions promptly, there may be delays, particularly outside of regular business hours, or close to examination dates. *It is best to ask questions well in advance of when the answer is needed.*

The course director is available to meet with students who have difficulties with the subject matter, are concerned about their academic performance, seek advice about their approach to learning, or who just want to chat about the wonderful world of microbiology. Please come during office hours or email to make an appointment.

Course Director

Christopher Burns, PhD
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Academic Coordinator

Regina Seitz, PhD
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COURSE ORGANIZATION

Medical Microbiology is presented over 120 hours divided in three major sections, each focusing on a particular aspect of the discipline. Students will immerse themselves in one sphere before moving on to the next. Each section concludes with a summative examination.

Immunology	Bacteriology	Mycology/Virology
41 hours total	38 hours total	41 hours total
6 hours clinical integration	13 hours clinical integration	TBA
2 dry laboratories	1 dry laboratory	TBA
6 quizzes (+1 optional quiz)	5 quizzes	7 quizzes

The majority of planned activities are lectures where students will learn basic principles of microbiological science, infection, and immunity. These are supplemented with small group, dry laboratory, and clinical integration activities tailored to heighten student understanding of pertinent topics and to develop an appreciation of the importance of microbiology in human health and disease. Small group activities encourage assimilation and review of basic concepts, and include new information that will be tested on examinations. Attendance is required at such activities.

Clinical Integration Lectures promote learning in a very different way from traditional lectures. Clinicians have specifically crafted fast-paced cases embracing basic science knowledge in relation to medical practice. Faculty and students engage one another during in-class sessions through interactive questioning and other active learning strategies. These are rare opportunities to witness the vital relationship between physician and scientist. Attendance at all clinical lectures is highly recommended.

ASSESSMENT

Student accomplishment in Medical Microbiology will be evaluated using a combination of exams and quizzes. *Each of the three examinations will count for 30% of the final course grade. Each quiz (18 planned) will be given equal weight totaling 10% of the final course grade. Optional quizzes will not contribute to the grade.* At the end of the course, teaching faculty from the Department of Microbiology meet to set the Pass-Fail line two standard deviations from the mean grade.

Quizzes. Weekly assessment of student learning will be done using online quizzes. The quizzes will only be available for the times indicated in the schedule. Each quiz is worth <1% of the final grade reflecting their primary intent to provide formative feedback that students can use to gauge their learning of the course material and make adjustments if necessary.

Examinations. Each section of the course will culminate with a non-cumulative, written, multiple-choice test where students will demonstrate understanding of course material. Any information presented in lecture, small group activities, or the required readings may appear on examinations, *however, the primary intent is to assess whether students have met the learning objectives provided with each lecture or activity.*

Detailed instructions will be given with the examinations. Students will need to bring a number 2 pencil and will have an opportunity to review the exams about two weeks later.

Scantron sheets will be collected for grading at 12:00pm. No extra time will be allowed.

REQUIRED TEXTBOOKS

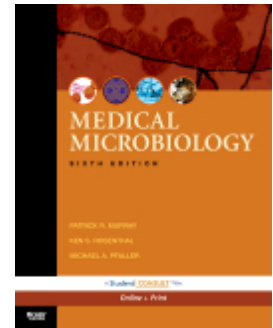
Preparing prior to class is the best way to get the most from lectures and to ensure success in Medical Microbiology. Studying assigned textbook chapters will increase knowledge and promote complete understanding and efficient mastery of the subject material.

Immunology

The Immune System, 3rd ed.

Peter Parham

(New York: Current Trends/Garland, 2009)

**Bacteriology / Mycology / Virology**

Medical Microbiology, 6th ed.

Patrick R. Murray, Ken S. Rosenthal, Michael A. Pfaller

(Philadelphia: Elsevier/Mosby, 2009)

OTHER RECOMMENDED BOOKS

Electronic versions of the following texts are available free online. Review books provide concise summaries, while clinical texts provide broader views. Although these additional resources may be helpful in understanding, or expanding on, lecture material, students are encouraged not to substitute quantity for quality in their studying. The notes, lectures, and required readings contain all the necessary information.

Reviews

Jawetz, Melnick, & Adelberg's Medical Microbiology, 24e

Geo. F. Brooks, Karen C. Carroll, Janet S. Butel, Stephen A. Morse

<http://www.accessmedicine.com>

Review of Medical Microbiology and Immunology, 10e

Warren Levinson

<http://www.accessmedicine.com>

Clinical Texts

Harrison's Online

Featuring the complete contents of *Harrison's Principles of Internal Medicine*, 17e

Anthony S. Fauci, Eugene Braunwald, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo,

J. Larry Jameson, and Joseph Loscalzo, Eds.

<http://www.accessmedicine.com>

Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, 7th ed

Gerald L. Mandell, John E. Bennett, and Raphael Dolin

<http://www.mdconsult.com>

ADDITIONAL RESOURCES FOR STUDENT SUCCESS IN MEDICAL MICROBIOLOGY

Course Website www.med-ed.virginia.edu/courses/micro/index.cfm is a repository of information for successful completion of this course, including lecture notes, powerpoints, quizzes, tutorials, practice exams, laboratory information, and links to other web sites. The website will be updated as new resources are necessary. *This web site is the most up-to-date reference for the course.*

Newsgroup. Answers to common conceptual questions are posted to the course newsgroup by students and by faculty. Students may submit questions by email to cmburns@virginia.edu, and faculty will respond via the course newsgroup. The Newsgroup is the first place to check when reviewing for exams, because lecture clarifications and error corrections will be posted here promptly. Questions will be addressed as “conversations” and topics may have many entries to allow complete understanding of that topic. Students can reach the Newsgroup through the course website.

Remember, the most efficient way to have questions answered is to ask them in class! There will be a delay in getting answers to queries submitted by email.

Email. Any changes to the class meeting schedule including time, room, topic, and required preparation will be emailed directly to students. Students are responsible for information sent to their university email address. General course content questions and clarifications will be posted to the course Newsgroup to avoid overcrowding student email accounts.

BUGS/POPS. These medical microbiology tutorials with case studies are available for self-paced learning throughout the semester. Students are encouraged to use these and other tutorials early in the course (particularly during the immunology section) to promote familiarity with infectious principles prior to intense focus on the many pathogens presented in virology, mycology, and bacteriology.

Microbes in Motion II. This interactive electronic textbook with animations and quiz questions is a particularly useful tutorial for the bacteriology section of the course, although there are also chapters on immunology and virology. The software is available on all Health System Library computers.

First year course material including:

Basic Biology

The Online Biology Book, www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookTOC.html

Cell Biology

The Virtual Cell, www.ibiblio.org/virtualcell/tour/cell/cell.htm

The Open Directory Project, http://dmoz.org/Science/Biology/Cell_Biology/

The Biology Project (U. Arizona) www.biology.arizona.edu/cell_bio/cell_bio.html

Biochemistry

The Dictionary of Cell and Molecular Biology, www.mblab.gla.ac.uk/dictionary/

Genetics

DNA from the beginning, www.dnafb.org/dnafb/

Immunology

The Biology Project (U. Arizona)

<http://www.biology.arizona.edu/immunology/immunology.html>

Keratin.com, www.keratin.com/am/

PROFESSIONALISM OBJECTIVES

The goal of the University of Virginia School of Medicine is “to educate and train physicians to help people achieve healthy productive lives and advance knowledge in the medical sciences”. The Department of Microbiology recognizes that accomplishing this goal requires students learn more than just the subject matter presented in the course. Therefore, students are provided with these professionalism objectives and encouraged to practice them in Medical Microbiology, in other parts of the curriculum, and in outside activities. Doing so will substantially enhance their knowledge and technical skill through life-long learning while fostering the behaviors and personal qualities necessary for a truly successful and rewarding career making valued contributions to the community.

1. Demonstrate respect for others
 - a. Students are asked to attend all class meetings, particularly small group exercises.
 - b. Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy.
 - c. Students agree to abide by appropriate biosafety practices when required.
 - d. Students will respect patient confidentiality and dignity at all times.
2. Exhibit honesty and integrity
 - a. Students abide by the Honor Code of the University of Virginia at all times, particularly in all exams, quizzes, and graded assignments.
 - b. Students discuss honestly any grading oversights or computer/technology errors with the course director as soon as discrepancies arise.
3. Practice concern through communication, respect, and understanding
 - a. Students take opportunities to “rehearse” professional etiquette when dealing with faculty in situations of uncertainty and/or ignorance.
 - b. Students appreciate the enormous benefits of faculty variation in education and background by seeking to understand diverse populations.
 - c. Students encourage their classmates to heightened levels of understanding by promoting questions and through the support of shared personal experiences.
4. Perform assignments responsibly and with accountability
 - a. Students complete open-book, online quizzes, according to the section schedule.
 - b. Students arrive promptly to classes and all other activities.
 - c. Students work effectively as a team member when assigned, realizing they gain more when fully engaged with their classmates.
 - d. Students seize the opportunity to learn from a diverse group of faculty instructors in small group settings, focused on basic relevance of clinical cases.
5. Seek excellence and scholarship
 - a. Students strive to excel in all their studies including the four main areas of Medical Microbiology: immunology, bacteriology, mycology, and virology.
 - b. Students read to supplement the scaffold of information presented in lecture.
 - c. Students seek to develop treatment behaviors that will reduce the incidence of antimicrobial resistance in the world.
 - d. Students recognize that education is not just about mastering a subject, but also one’s self.