

PATHOGENIC MICROBIOLOGY 01:447:392
Spring 2022 (Tentative)

COURSE INSTRUCTOR: Dr. Haiyang Lu (hlu@dls.rutgers.edu)

Form: Fully asynchronous online

Office Hours: Students are encouraged to meet with the instructor during the synchronous office hours or office hours by appointment. TBA on Zoom

WEBSITE: <https://canvas.rutgers.edu/>

TECHNOLOGY REQUIREMENTS:

Microphone, high-speed internet, webcam

Please visit the Rutgers Student Tech Guide page for resources available to all students. If you do not have the appropriate technology for financial reasons, please email Dean of Students deanofstudents@echo.rutgers.edu for assistance. If you are facing other financial hardships, please visit the Office of Financial Aid at <https://financialaid.rutgers.edu/>.

COURSE OBJECTIVES:

The objective of this course is to provide the students with the background and up-to-date identifications of microbes that cause specific diseases in humans. By the end of the course, students will be able to understand the role that certain microorganisms play in particular human diseases, interpret the clinical presentation of these infectious diseases, and describe the relevant microbiology, pathophysiology, and immunology.

COURSE DESCRIPTION:

This course will integrate basic microbiology and infectious diseases. The intention is to provide students with the tools needed to understand medical microbiology, mainly using a case-based approach to stress key principles of microbial pathogenesis, the applications of clinical microbiology diagnostic techniques and the selection and use of key antimicrobial agents.

In each case study, the student will be introduced to a patient's history, differential diagnosis, clinical cues, laboratory data, pathogenesis, treatment, and prevention for a particular disease. Diagnosis and host/parasite interactions in diseases caused by microorganisms, including pathogenicity, virulence, and immunity, will be the main focus of the discussion.

PREREQUISITES:

General Biology 01:119:115-116-117 or 01:119:101-102 and General Chemistry 01:160:161-162-171 (or higher) and Organic Chemistry 01:160:307. Anatomy & Physiology, or Systems Physiology is recommended.

TEXTs FOR THE COURSE:

• **REQUIRED:**

Medical Microbiology for the New Curriculum: A case-based approach; Roberta Carey, Mindy Schuster, Karin L McGowen. 1st Pub Wiley 12/10/2007 ISBN 9780471479338

Microbiology: Principles and Explorations, 10th Edition, J.G. Black, 2018, John Wiley & Sons, Inc. ISBN: 978-1-119-39011-4

• **RECOMMENDED:**

Microbiology by OpenStax. Digital ISBN-13: 978-1-947172-23-4 and Hardcover Print ISBN-13: 978-1-938168-14-7 (This textbook is available for free download at the OpenStax website)

LECTURES:

The course lectures will be given asynchronously. All video lessons are in PlayPosit platform with pre-recorded short videos, questions, animations, and YouTube videos built-in. The instructor will post the video lessons along with the PowerPoint slides for each class. Each week will be organized into a module on Canvas. Students will study the material at their own pace and complete assignments by due dates. The instructor will also post a weekly agenda on the home page of the course Canvas site. It includes study material along with all the assignments that are required for that week and due dates. This will help you stay organized during the semester.

Tentative schedule (Schedule and topics are subject to change):

Lecture	Date	Key Lecture Topics	Chapters ¹ Pages ²
1		Orientation	
2		Scope and History of Microbiology, Taxonomy	Ch 1, 10
3		Cell Characteristics	Ch 5
		Quiz 1 (Lectures 1- 3)	
4		Microbial Growth	Ch 7
5		Microbial Genetics	Ch 8
6		Gene transfer	Ch 15
		Quiz 2 (Lectures 4- 6)	
7		Host Microbe Relationships and Disease Processes	Ch 9, 15
8		Antimicrobial Therapy	Ch 14
9		Epidemiology and Nosocomial Infections	Ch 16
		Quiz 3 (Lectures 7- 9)	
10		Viruses	Ch 11
11		SARS-CoV-2 and Covid-19	
12		SARS-CoV-2 and Covid-19– Cont’d	
		Quiz 4 (Lectures 10- 12)	
13		Case Study 1: Nursing Home Resident with Fever, Cough, and Myalgias	Ch22; Pg. 115-122
14		Case Study 1– Cont’d	
15		Case Study 2: Neonate with Fever and Vesicular Rash	Ch 21; Pg. 192-200
16		Case Study 2– Cont’d	
		Quiz 5 (Lectures 13- 16)	
17		Case Study 3: Boy with Acute pharyngitis	Ch 22; Pg. 1-11
18		Case Study 3– Cont’d	
19		Case Study 4: Woman with Acute Fever and Productive cough	Ch 22; Pg. 99-114

20		Case Study 4– Cont’d	
		Quiz 6 (Lectures 17- 20)	
21		Innate Host Defenses	Ch 17
22		Adaptive immunity	Ch 18
23		Case Study 5: Man with a Surgical Wound after a Prosthetic Hip Placement	Ch 20; Pg. 65-74
24		Case Study 5– Cont’d	
		Quiz 7 (Lectures 21- 24)	
25		Case Study 7: Student with Dysuria	Ch 21; Pg.12-22
26		Case Study 7– Cont’d	
27		Case Study 8: Boy with Vomiting and Diarrhea after a School Picnic	Ch 23; Pg. 23-34
28		Case Study 8– Cont’d	
		Quiz 8 (Lectures 24- 28)	

Chapters¹: Microbiology: Principles and Explorations

Pages²: Medical Microbiology for the New Curriculum: A case based approach

ASSESSMENTS:

Quizzes

There will be 8 quizzes; each contributes 6% toward the final course grade. Quizzes may consist of a variety of formats including multiple-choice, true/false, matching, and/or analytical problem questions. The quizzes will cover material discussed in the lecture PPT/videos, and from any figures/reading assigned in the book or from other sources.

Quiz guidelines

1. All quizzes are timed and will be given online asynchronously using the quiz feature on Canvas. Each quiz is open for 36 hour and students must take it within this time window. The dates will be announced later.
2. Quizzes will be in one-at-a time question format (once a student answers a question, they cannot go back to it) and randomized question and answer order. The quiz will close once submitted or once the time limit (~ 30 - 40 min) is reached, whichever occurs first.
3. Quizzes will be open book/resource, however, since they will be timed, students should not rely on using these resources as they will not have time to finish the quizzes. Students should be prepared to take all quizzes without the aid of external resources. are expected to complete the work independently and will sign an honor code statement at the end.
4. Students are responsible for ensuring that they have a stable internet connection. Technical difficulties will not be an excuse to retake the exam.
5. Quizzes cannot be rescheduled or retaken. Individual exceptions will possibly be made only in cases of severe illness, family emergency, or a religious holiday recognized by Rutgers University.
6. Students who require special accommodations must make arrangements with the course instructor. Students with disabilities requesting accommodations must follow the procedures outlined at <https://ods.rutgers.edu/students/getting-registered>.

Assignments

There will be weekly assignments including PlayPosit assignments (46%) and Discussion Board assignments (6%). The assignments are used to help keep students on track with the lectures and the

reading as well as to promote critical thinking skills and to encourage students' interactions with their peers. Students are expected to complete each assignment by its due date. Late submission will result in a penalty or even won't be accepted. Questions on PlayPosit assignments are embedded in each video lesson and may consist of multiple-choice, multiple answers, true/false, fill-in-the blanks, matching, and/or short-answers.

Discussion Board Participation

Students will communicate and collaborate throughout the course. Each week, each student will be required to make at least one discussion post based on that week's lectures. Additionally, everyone will be required to post responses to one other discussion question. Participation in the discussion forums is graded. Submit an initial post responding to the prompt before 11:59 pm on Thursday of the week, and post your reflections on at least one other person's post before 11:59 pm on Sunday of that same week. Students will not be able to see others' postings until they have posted something of their own.

Grading Rubric for Weekly Online Discussions *

	Unacceptable 0 Points	Acceptable 1 Point	Good 1.5 Points	Excellent 2 Points
Initial posting	<p>Posts no assignment.</p> <p>Posts information that is off-topic, incorrect, or irrelevant to discussion.</p>	<p>Posts adequate response with superficial thought and preparation; doesn't address all aspects of the prompt.</p> <p>Repeats but does not add substantive information to the discussion.</p>	<p>Posts well developed response that addresses all aspects of the task; lacks full development of concepts.</p> <p>Posts information that is factually correct; Contributes valuable information to discussion.</p>	<p>Posts well developed response that fully addresses and develops all aspects of the prompt.</p> <p>Posts factually correct, reflective and substantive contribution.</p> <p>Contributes to discussion with clear, concise comments.</p> <p>Advances discussion.</p>
Follow-up posting	<p>Posts no follow-up responses to peer's work.</p>	<p>Posts shallow responses to discussion (e.g., agrees or disagrees); does not enrich discussion.</p> <p>Elaborates on an existing posting with further comment or observation.</p>	<p>Elaborates on an existing posting with further comment or observation.</p>	<p>Demonstrates analysis of others' posts; extends meaningful discussion by building on previous posts.</p>

*<https://canvas.uw.edu/courses/1065666/pages/discussion-board-participation-and-expectations>

Course grades are produced as follows:

- Quizzes = 48%
- PlayPosit Assignments = 46%
- Discussion Board Assignments = 6%
- Total Percent = 100%

Grading Scale

A	90-100%
B+	86-89%
B	80-85%
C+	76-79%
C	70-75%
D	60-69%
F	<60%

Grades: All grades will be made available on the course Canvas site under “Gradebook”. Any questions related to the grading must be brought to the instructor within one week. The instructor will NOT address appeals at the end of the semester related to material covered in the beginning or middle of the semester. No additional work for extra credit will be given to selected individuals at the end of the semester to bump them to the next letter grade. Any requests for extra credit will be ignored.

Grade appeals

All grade appeals on quizzes or assignments must be submitted no later than 1 week after the grade has been posted. Appeals must be clearly stated and emailed to the instructor directly. The instructor will not address appeals at the end of the semester related to material covered at the beginning or middle of the semester.

Office Hours

Students are strongly encouraged to attend office hours to ask all your questions directly.

Online Behavior

Students will communicate and collaborate throughout the course. Students are expected to conduct themselves with the appropriate scholarly and professional attitude when interacting with the instructor and peers.

Cheating and plagiarizing, in any form, will not be tolerated. The consequences of scholastic dishonesty are very serious. Students must adhere to the University Policy on Academic Integrity which can be found at <http://academicintegrity.rutgers.edu/academic-integrity-policy>.

Academic Integrity Policy

Summary:

<http://nbacademicintegrity.rutgers.edu/home-2/academic-integrity-policy/>

Resources for Students:

<http://nbacademicintegrity.rutgers.edu/home-2/for-students/>

Honor pledge:

All students will need to sign the Rutgers Honor Pledge on every major exam/quiz, assignment, or other assessment as follows:

On my honor, I have neither received nor given any unauthorized assistance on this examination (assignment, paper, quiz, etc.).

Rutgers University takes academic dishonesty very seriously. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy and the possible penalties

(including suspension and expulsion) for violating the policy. As per the policy, all suspected violations will be reported to the Office of Student Conduct. Academic dishonesty includes (but is not limited to):

- Cheating
- Plagiarism
- Aiding others in committing a violation or allowing others to use your work
- Failure to cite sources correctly
- Fabrication
- Using another person's ideas or words without attribution—re-using a previous assignment
- Unauthorized collaboration
- Sabotaging another student's work in doubt, please consult the instructor

Please review the [Academic Integrity Policy](#) or the [Academic Integrity Resources for Students](#)

Almost all original work is the intellectual property of its authors. These works may include syllabi, lecture slides, recorded lectures, homework problems, quizzes, and other materials, in either printed or electronic form. The authors may hold copyrights in these works, which are protected by U.S. statutes. Copying this work or posting it online without the permission of the author may violate the author's rights. More importantly, these works are the product of the author's efforts; respect for these efforts and for the author's intellectual property rights is an important value that members of the university community take seriously.

For more instructions on copyright protections at Rutgers University, please refer to the Rutgers Libraries.

Learning Centers: <https://rlc.rutgers.edu/>

Academic Advising for SAS students: <https://sasundergrad.rutgers.edu/advising/advising>

Online Learning Tools from Rutgers University Libraries including Rutgers RIOT, Searchpath and RefWorks <http://www.libraries.rutgers.edu/tutorials>

Student-Wellness Services

Resources for Student Success (success.rutgers.edu)

The faculty and staff at Rutgers are committed to your success. Students who are successful tend to seek out resources that enable them to excel academically, maintain their health and wellness, prepare for future careers, navigate college life and finances, and connect with the RU community. Resources that can help you succeed and connect with the Rutgers community can be found at success.rutgers.edu, and nearly all services and resources that are typically provided in-person are now available remotely.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ <http://health.rutgers.edu/medical-counseling-services/counseling/>

CAPS is a university mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professionals within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community, and consultation and collaboration with campus partners.

Crisis Intervention:

<http://health.rutgers.edu/medical-counseling-services/counseling/crisis-intervention/>

Report a Concern: <http://health.rutgers.edu/do-something-to-help/>

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Report a Bias Incident *If you experience or witness an act of bias or hate, report it to someone in authority. You may file a report online and you will be contacted within 24 hours. The bias reporting page is [here](#).*

Bias is defined by the University as an act, verbal, written, physical, psychological, that threatens, or harms a person or group on the basis of race, religion, color, sex, age, sexual orientation, gender identity or expression, national origin, ancestry, disability, marital status, civil union status, domestic partnership status, atypical heredity or cellular blood trait, military service or veteran status.