Texas A&M University-Texarkana
BIOL 497 – Medical Microbiology

Spring 2021 Course Syllabus
RELLIS Campus

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Virtual Office Hours: MW 12:00p-3:00p or by appointment
(*Note:* When emailing or leaving a phone message, please indicate which course you are contacting me about.)

Semester Credit Hours:
3

Course Meeting Times:
R 12:00p-2:40p Remotely via Zoom

Course Description:
This upper-division course is designed to introduce students to the microbial species that cause human disease, with a special focus on bacterial and viral infections. Students will study the basic concepts of clinical microbiology, immunology, and epidemiology. Current topics will also be discussed, such as antibiotic resistance, public health threats, and global health. *Prerequisites:* Successful completion of two semesters of biology or approval by the instructor. It is recommended to have at least one other more specialized biology course such as Genetics (BIOL 310), General Microbiology (BIOL 311) or Cell and Molecular Biology (BIOL 402).

Course Delivery Method:
The course will be delivered online.

Required Textbooks/Resources:
Madigan, M. T., Bender, K. S., Buckley, D. H., Sattley, W. M., and Stahl, D. A. (2017) Brock Biology of Microorganisms, 15th Edition, Pearson, ISBN: 978-0134261928.

Student Learning Outcomes:

Upon completion of this course, students should be able to:

- Demonstrate an understanding of the host pathogen interface.
- Discuss the main mechanisms of innate host defenses, adaptive immunity, and clearance of pathogens.

- Explain current techniques for the detection of microbial pathogens that affect humans.
- Describe antimicrobial compounds and basic resistance mechanisms.
- Demonstrate an understanding of the approaches to discover and characterize a pathogen and its virulence factors.
- Critically evaluate scientific articles through careful analysis of methods and results.
- Demonstrate comfort and skill with written scientific communication.

Course/Instructor Specific Information:

Lecture: Lecture notes as well as details about exams and course assignments will be provided on Blackboard. Attendance of weekly Zoom meetings is highly recommended to ask questions and receive additional course information. You will receive meeting invitations through your TAMUT email account. Students are strongly encouraged to read the assigned textbook chapters.

Exams: There will be a midterm and a comprehensive final exam. Students will be told which lectures are covered in the specific exam. The exam format will include multiple choice and short-answer questions. Sample questions will be available on Blackboard to guide the study process. All exams are scheduled to be taken online using ProctorU. The examination period for the midterm runs Monday to Sunday (end of the day). Students may take the 120-minute exam at any time during the one-week period. Tardy students will not be given extra time to complete exams. Absences from an exam will only be excused under special circumstances and proper documentation must be provided. Excused absences include university-sanctioned events, extreme illness or other extenuating circumstances. Arrangements for make-up exams due to university-sanctioned events must be made prior to the exam. In case of other acceptable excuses, you must notify me at the soonest possible time in order to avoid getting a zero on the missed exam.

Scientific Article Critiques: Every three weeks each student will select an article that is presented during this time period and write a critique of the paper. Critiques should be written in an appropriate scientific style (e.g., APA format), and each should correctly cite at least three primary scientific references. Citations may be formatted in the style of any major scientific journal, and should indicate to the reader the source of data and observations and conclusions that are cited in the critique. Critiques will be no longer than three pages excluding references. The idea of a critique is to go through the paper, figure by figure, and describe what was done, how it was done, suggest alternate explanations for the results as appropriate, and come up with ideas for additional tests that could have helped to confirm or refute the authors' conclusions. Please make sure to read additional assignment descriptions that are provided on Blackboard. The individual deadlines associated with this assignment are listed below (see important dates).

Virtual Office Hours: If you are unable to attend scheduled office hours please contact me to set up an appointment. Office hours are subject to change without notification.

Syllabus: Any changes to the syllabus or course information will be posted on Blackboard.

Final Grade: If you have any issues with your individual grades, you must take care of this prior to the last class day (May 4, 2021).

Methods of Evaluation:

Grading for the course will be as follows (100% total):

Midterm Exam	30%
Final Comprehensive Exam	30%
Scientific Article Critiques (4)	10% each

Grading Scale:

A = ≥ 90%
B = 80-89%
C = 70-79%
D = 60-69%
F = < 60%

Important Dates (16 Week Session – Spring I; January 19-May 12):

January 18	Martin Luther King, Jr. Day – RELLIS Campus Closed
January 19	Spring Classes Begin Add/Drop Begins (16-Week Classes)
January 25	Last Day for Add/Drop (16-Week Classes)
February 3	Spring Census
February 19	1st Scientific Article Critique Due
March 1-7	Midterm Exam Period
March 12	2nd Scientific Article Critique Due
March 15-19	Spring Break – Faculty & Student Holiday
April 2	Reading Day – No Classes
April 9	3rd Scientific Article Critique Due
April 20	University Withdrawal/"Q" Drop Deadline (16-Week Classes)
April 30	4th Scientific Article Critique Due
May 4	Last Day of Classes
May 5	Reading Day – No Classes
May 6-12	Finals Week – See Finals Schedule for Specific Meeting Times
May 15	Spring Commencements at RELLIS

Course Outline (Subject to Change):

Date	Topic	Assigned Reading
Week 1 Jan. 19-22	**Class Introduction and Syllabus Review**	-
Week 2 Jan. 25-29	*Microbial Symbioses with Humans* • Structure and Function of the Healthy Adult Human Microbiome • From Birth to Death: Development of the Human Microbiome • Disorders Attributed to the Human Microbiome • Modulation of the Human Microbiome	Chapter 24
Week 3 Feb. 1-5	*Microbial Infection and Pathogenesis* • Human-Microbial Interactions • Enzymes and Toxins of Pathogenesis	Chapter 25
Week 4 Feb. 8-12	*Innate Immunity: Broadly Specific Host Defenses* • Fundamentals of Host Defense • Cells and Organs of the Immune System • Phagocyte Response Mechanisms • Other Innate Host Defenses	Chapter 26
Week 5 Feb. 15-19	*Adaptive Immunity: Highly Specific Host Defenses* • Principles of Adaptive Immunity • Antibodies • The Major Histocompatibility Complex (MHC) • T Cells and Their receptors • Immune Disorders and Deficiencies	Chapter 27
Week 6 Feb. 22-26	*Clinical Microbiology and Immunology* • The Clinical Microbiology Setting • Isolating and Characterizing Infectious Microorganisms • Immunological and Molecular Tools for Disease Diagnosis • Prevention and Treatment of Infectious Diseases	Chapter 28
Week 7 Mar. 1-5	*Epidemiology* • Principles of Epidemiology • Epidemiology and Public Health • Emerging Infectious Diseases, Pandemics, and Other Threats	Chapter 29
Week 8 Mar. 8-12	*Person-to-Person Bacterial and Viral Diseases* • Airborne Bacterial Diseases • Airborne Viral Diseases	Chapter 30
Week 9 Mar. 15-19	**Spring Break**	-

Week 10 Mar. 22-26	*Person-to-Person Bacterial and Viral Diseases* • Direct-Contact Bacterial and Viral Diseases • Sexually Transmitted Infections	Chapter 30
Week 11 Mar. 29-Apr. 1	*Vectorborne and Soilborne Bacterial and Viral Diseases* • Animal-Transmitted Viral Diseases • Arthropod-Transmitted Bacterial and Viral Diseases	Chapter 31
Week 12 Apr. 5-9	*Vectorborne and Soilborne Bacterial and Viral Diseases* • Soilborne Bacterial Diseases	Chapter 31
Week 13 Apr. 12-16	*Waterborne and Foodborne Bacterial and Viral Diseases* • Water as a Disease Vehicle • Waterborne Diseases	Chapter 32
Week 14 Apr. 19-23	*Waterborne and Foodborne Bacterial and Viral Diseases* • Food as a Disease Vehicle • Food Poisoning	Chapter 32
Week 15 Apr. 26-30	**Final Exam Review**	-

For University policies on Academic Integrity, **A&M-Texarkana Email Address**, **and the Drop Policy, please refer to** Syllabus Policies***.***

For policies governing all web-enhanced and online courses, please refer to Online Education**.

Disability Accommodations: The Americans with Disabilities Act (ADA) is a federal non-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this law requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Student Life in UC room 126, or call (903) 223-3116. For additional information visit Disability Services***.**

* http://bit.ly/TAMUT_SyllabusPolicies

** http://bit.ly/TAMUT_OnlineEducation

*** http://bit.ly/TAMUT_DisabilityServices

Coronavirus Safety Measures

Students must observe the following practices while participating in face-to-face courses and course-related activities (office hours, transitioning to and between classes, study spaces, academic services, etc.).

Self-monitoring
Before you return to campus you should review the self-monitoring CDC recommendations that are available and hyperlinked below:

Self-monitoring CDC Recommendations

Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction or visit campus.

Face Coverings
Face coverings (cloth face covering, surgical mask, neck gaiters, etc.) must be properly worn in all common areas including classrooms, lobbies and hallways, and offices.

- To attend a face-to-face class, students must wear a face covering (or a face shield if they have an exemption letter). If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report the incident to Carlos Pinkerton (cpinkerton@rellis.tamus.edu). Carlos will follow-up with the student and initiate the student conduct process. Additionally, the faculty member may choose to teach that day's class remotely for all students.
- Students who refuse to wear face coverings may be subject to possible sanctions for violations including failure to comply with university official, failure to comply with federal, state and local laws, disorderly conduct, and disruptive activity.

Physical Distancing
Physical distancing must be maintained between students, instructors, and others in course and course-related activities.

Within the building, we ask that you:
- Follow marked pathways for entering and exiting classrooms.
- Leave classrooms promptly after course activities have concluded.
- Avoid congregating in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.

Outside of the building, we ask that you:
- Practice physical distancing of at least 6 feet.
- Wear a mask unless you can maintain an appropriate physical distance of 6 feet.

Quarantine
Students required to quarantine must participate in courses and course-related activities remotely and **must not attend face-to-face course activities**. Students should notify their instructor of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities.

Remote Learning
Every face-to-face class will have a remote learning option. See course/instructor specific information above.

Excused Absence
Students experiencing personal injury or illness that is too severe for the student to attend class qualify for an excused absence. See course/instructor specific information above.

COVID-19 Reporting Process
If you are exhibiting signs of COVID-19, we ask that you do not come to class. Instead you should complete the following steps:

- Visit with a medical professional for evaluation and possible testing. Any upper-division student at RELLIS can visit the Texas A&M Physicians Health Community Clinic. The clinic is located in the Bryan Medical Center at:

  2900 East 29th Street, Suite #1010,
  Bryan, Texas 77802.

- Report your signs and/or testing outcome using the A&M System Portal available and hyperlinked below:

  Texas A&M University System Portal

  You should utilize the portal if:
  - You tested positive for COVID-19.
  - You are experiencing COVID-19 symptoms.
  - You have been in close contact (within 6 feet for more than 15 minutes) of someone who has or is suspected to have COVID-19.
  - Someone in your household (including roommate or housemate) has tested positive for COVID-19.