

BIOL 3412

Pathogenic Microbiology



Instructor: Dr. Emerson Crabill

Email: ecrabill@angelo.edu

Phone: 325-486-6642

Office: CAV 003C

Office Hours:

Course Information

Course Description

The interactions between pathogenic microorganisms and their host organisms with an emphasis on bacteria. This includes elements of immunity, diagnosis and treatment of infection with an emphasis on human diseases. This course includes a heavy emphasis on the role and application of laboratory work.

Prerequisite and Co-requisite Courses

Any 3 of the following courses each with a grade of C or better: Biology 1306/1106, 1411, 1413, 3301, 3411, or by special departmental approval.

Prerequisite Skills

Accessing Internet websites, including Blackboard and Tophat, and proficiency with Microsoft Word and/or PowerPoint are all expectations of this course.

Student Learning Outcomes

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

1. Isolate, maintain using aseptic technique, and laboratory test unknown bacteria
2. Use free publically available databases to evaluate protein sequences
3. Communicate the results in a scientifically appropriate written form.
4. Have a general understanding of host pathogen interactions
5. Recognize and be able to communicate using microbiologically specific terminology
6. Understand the mechanisms by which pathogens cause disease

Course Delivery

This course has a lecture component as well as a laboratory component. In lecture students will take notes and interact verbally with the professor. In the laboratory portion of the course the students will do hands on research in the microbiology lab.

Required Texts and Materials

There are no required texts for this course

Technology Requirements

To successfully complete this course, students need to have access to a computer connected to the internet. This course will require the use of free, publically available online databases for bioinformatics.

Students need to purchase access to Top Hat. Lectures and daily assignments will be done through Top Hat. All lecture notes and Exams will be done through Blackboard.

Top Hat

*We will be using **Top Hat Pro** (www.tophat.com) for class participation. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message. You can visit the Top Hat Overview (<https://success.tophat.com/s/article/Student-Getting-Started-with-Top-Hat>) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as provides a brief overview to get you up and running on the system.*

An invitation will be sent to you by email. If you do not receive this email, you can register by simply visiting our course website: <https://app.tophat.com/e/827390>

*Note: our course Join Code is **827390***

Top Hat Pro may require a paid subscription, and a full breakdown of all subscription options available can be found here: www.tophat.com/pricing

Communication

Students can communicate with the instructor face to face during office hours or by appointment. E-mails and phone calls will be responded to in a timely manner (typically within 24 hours), but do not expect an immediate response.

Grading

Evaluation and Grades

Course grades will be determined as indicated in the table below.

Assessment	Points
Exam 1	100
Exam 2	100
Exam 3	100
Exam 4	100
Top Hat questions in lecture	50
Lab Quizzes	100
Lab Reports	50
Lab Final	100
Total	700

Grading System

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale is in use for this course:

A = 630 - 700 points

B = 560 - 629 points

C = 490 - 559 points

D = 420 - 489 points

F = 0 - 419 points (Grades are not rounded up)

Assignment and Activity Descriptions

There will be four (4) exams over material covered in lecture. The first three will be during regularly scheduled class time, the fourth will be during the final exam schedule, but it is not cumulative. Each exam is worth 100 points. During Lectures there will be questions asked via TopHat, these are worth a total of 50 points. Lab Quizzes are taken at the beginning of lab and will cover content from the previous week. Each quiz is worth 10 points. There will be a quiz EVERY week, but you will only keep the scores

from your best 10 quizzes and the rest will be dropped. There will be two lab reports worth 25 points each (50 total). These will be assigned during the semester. There will be a lab final worth 100 points.

General Policies Related to This Course

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)¹
- [Angelo State University Catalog](#)²

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's [Statement of Academic Integrity](#).³

Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the [Student Disability Services website](#).⁴

The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Houston Harte University Center, Room 112

Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 [Grading Procedures](#)⁵ for more information.

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for [Observance of Religious Holy Day](#)⁶ for more information.

Title IX at Angelo State University

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Miller, J.D.
Special Assistant to the President and Title IX Coordinator

Mayer Administration Building, Room 210
325-486-6357
michelle.boone@angelo.edu

You may also [file a report online](#)⁷ 24/7.

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information, visit the [Title IX website](#).⁸

Required Use of Masks/Facial Coverings by Students

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory [Facial Covering Policy](#)⁹ to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

Course Schedule

Week	Lecture Topic	Lab Topic
Jan 18 & 20	Introduction and <i>Staphylococcus</i>	No Labs
Jan 25 & 27	<i>Streptococci</i> and <i>Enterococcus</i>	Working with Pure Cultures
Feb 1 & 3	<i>Pneumococcus</i> and <i>Neisseriae</i>	Quantitative plate counts
Feb 8 & 10	<i>Bacteroides</i> and Enterics	Bacterial Enzymes
Feb 15 & 17	Enterics II and Exam I	Antibiotic sensitivity and MIC
Feb 22 & 24	<i>P. aeruginosa</i> and <i>Bordetella</i>	<i>Streptococcus</i> and <i>Enterococcus</i>
Mar 1 & 3	<i>Legionella</i> and <i>Coxiella</i>	<i>Staphylococcus</i> and <i>Micrococcus</i>
Mar 8 & 10	<i>Clostridia</i> and <i>Helicobacter</i>	<i>Pseudomonas</i>
Mar 22 & 24	Exam II and <i>Mycobacterium</i>	The Enterobacteriaceae
Mar 29 & 31	<i>Syphilis</i> and <i>Borrelia burgdorferi</i>	Enteric Species
Apr 5 & 7	<i>Bartonella</i> and <i>Chlamydiae</i>	Salmonella
Apr 12 & 14	<i>Rickettsioses</i> and Exam III	Enterics in meat
Apr 19 & 21	<i>Listeria</i> and <i>Brucella</i>	Bacterial transformation
Apr 26 & 28	<i>Yersinia pestis</i> and <i>B. anthracis</i>	Epidemic
May 3 & 5	Plant Pathogens and <i>Campylobacter</i>	Lab Final
May 13	Exam IV – Thursday May 12th 8:00-10:00 AM	

¹ <https://www.angelo.edu/current-students/student-handbook/>

² <https://www.angelo.edu/academics/catalog/>

³ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

⁴ <https://www.angelo.edu/current-students/disability-services/>

⁵ <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

⁶ <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

⁷ <http://www.angelo.edu/incident-form>

⁸ <https://www.angelo.edu/title-ix>

⁹ <http://www.texastech.edu/downloads/ttus-policy-face-coverings.pdf>