

BIOL 3411

General Microbiology



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Office: CAV 003C

Office Hours: T/R 10-11 am; W 11-1 pm; F 2-3 pm

Course Information

Course Description

The major areas in the field of microbiology are surveyed, with special emphasis given to the bacteria. Groups of microorganisms are characterized in sufficient detail to reveal their nature. Fundamental concepts of biology and basic biological processes common to all forms of life are emphasized. Laboratory methods are stressed, and detailed studies are made of pure cultures.

Prerequisites

8 hours of introductory biology. See course catalog for list of courses that qualify.

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. Evaluate the data to identify the bacteria
3. Communicate the results in a scientifically appropriate written form.
4. Have a general understanding of microorganisms and their role in our world
5. Recognize and be able to communicate using microbiologically specific terminology
6. Understand the impact microorganisms have on human life

Course Delivery

This is a face-to-face course with online components that students are expected to access in Blackboard.¹

Required Texts and Materials

Textbook for Lecture:

Brock Biology of Microorganisms, 16th edition. Madigan et al., Pearson. 2021.

Lab Notebook:

Benson's Microbiological Applications, 14th edition. Brown et al., McGraw-Hill. 2016.

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:

Note: our course Join Code is 687429

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	Percent of Total Grade
Exam I	100
Exam II	100
Exam III	100
Exam IV	100
TopHat Questions/Participation	100
Lab Quizzes	100
Lab Reports	100
Unknown Bacterium Lab Paper	100
Total	800

Grading System

Course grades will depend on completing course requirements and meeting the student learning outcomes.

This course uses the following grading scale:

A = 720.00-800 points

B = 640.00-719.99 points

C = 560.00-639.99 points

D = 480.00-559.99 points

F = 0-479.99 points (Grades are not rounded up)

Assignment and Activity Descriptions

Exams I, II, and III will be given during the normal lecture time in the normal classroom. Exam IV, while not cumulative, will be given during the final exam scheduled time. Quizzes will be taken at the beginning of the laboratory section. Lab reports for each week will be due the following week in lab. There is a paper for the identification of an unknown bacterium worth 100 points. More details for this paper will be given later in the semester. There will be tophat questions associated with lectures.

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](#)²
- [Angelo State University Catalog](#)³

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](#).⁴

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](#).⁵

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

Dr. 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](#)⁶ for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)⁷ in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).⁸

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](#)⁹ for more information.

Title IX at Angelo State University

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which

includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Miller, J.D. You may submit reports in the following manner:

Online: [Incident Reporting Form](#)¹⁰

Face to Face: Mayer Administration Building, Room 210

Phone: 325-942-2022

Email: michelle.miller@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State's policy please visit the [Title IX website](#).¹¹

Information About COVID-19

Please refer to ASU's [COVID-19 \(Coronavirus\) Updates](#)¹² web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification on potentially short notice based on developing circumstances.

Course Schedule

Date	Lecture Topics	Lab Activities
Aug 24 & 26	Microbial World and Cell Structure and Function	Aseptic Technique and Pure Cultures
Aug 31 Sep 2	Microbial Growth and Protein Processing	Temperature and Growth
Sep 7 & 9	Microbial Regulatory Systems and Molecular Growth	Microscopy and Staining
Sep 14 & 16	Genetics of Bacteria and Exam I	Microscopy and Staining
Sep 21 & 23	Microbial Genomics and Biotechnology and Synthetic Biology	Enumeration of Bacteria
Sep 28 & 30	Microbial Evolution and Metabolic Diversity	Disinfectants and Handwashing
Oct 5 & 7	Taking a measure of Microbial Systems and Ecosystems	Lysozyme, Osmotic Pressure and UV light
Oct 12 & 14	Nutrient Cycles and Exam II	Streptomyces: Isolation of Antibiotic Producer
Oct 19 & 21	Microbial Symbioses with humans And Microbial Pathogenesis	Bacteria in food
Oct 26 & 28	Innate and Adaptive Immunity	CRISPR-Cas
Nov 2 & 4	Immune Disorders and Diagnosing Infectious Disease	Identification of Unknown Bacterium
Nov 9 & 11	Exam III and Epidemiology	Identification of Unknown Bacterium
Nov 16 & 18	Person to person diseases and Viral Diseases	Identification of Unknown Bacterium
Nov 23	Vector borne diseases	No Labs
Nov 30 Dec 2	Waterborne diseases and Eukaryotic Pathogens	Unknown Bacterium Paper is Due
Dec 9	Exam IV 10:30 am	

¹ <https://blackboard.angelo.edu/>

² <https://www.angelo.edu/current-students/student-handbook/>

³ <https://www.angelo.edu/academics/catalog/>

⁴ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

⁵ <https://www.angelo.edu/current-students/disability-services/>

⁶ <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

⁷ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

⁸ https://www.angelo.edu/current-students/writing-center/academic_honesty.php

⁹ <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

¹⁰ <https://www.angelo.edu/incident-form>

¹¹ <https://www.angelo.edu/title-ix>

¹² <https://www.angelo.edu/covid-19/>