Biology 31 (BIOL 31) Microbiology

Semester: Spring 2020	*Reedley Community College*
Instructor: Andrew Strankman	*Class No. 50175, 50176*
Email:	Lecture Times (PHY76):
andrew.strankman@reedleycollege.edu	Tu/Th: 12:30-1:45pm
Phone: 559-638-0300 ext. 3499	Lab Times (LFS 6):
Office: LFS 5	Tu/Th: 2:00-4:50pm 50176
Office Hours:	Tu/Th: 9:30-12:20pm 50175
Mon: 9:00-9:50am (digital)	
Wed: 12:00-12:50pm	
Fri: 10:00-12:50pm	
Date: 08/12/19 - 12/13/19	*virtual office hours can be accessed through email, or live:andrewstrankman_3 on the skype application for messaging, voice calls, or live chat

Catalog Description: Microbiology, 5 units, 3 hours lecture, 6 hours lab, including classification, morphology, identification, and physiology of microorganisms. May include a field trip.

Prerequisites: Successful completion of Biology 1 or Biology 5 and Chemistry 1A or 3A. Recommended: Successful completion of Biology 20 and Biology 22.

Objectives:

- To have a basic understanding of microbes as living organisms.
- To become familiar with laboratory techniques necessary to work with microorganisms.
- To understand and practice aseptic techniques.
- To become familiar with microbial morphology, classification, and identification.
- To understand the role of microorganisms in health and disease and the mechanisms used to control microbial populations.

Required Materials

- Tortora, Gerard J. et al., Microbiology, 13th Edition, 2018. Benjamin Cummings Publishing Company
- Symbiosis for Reedley College. Latest Edition. Benjamin Cummings Publishing Company. This is a custom lab manual and can only be purchased at Reedley College. Rentable lab manuals are not accepted. New Version this semester!
- Scantron #882E (8 scantrons)
- White Laboratory Coat (will be worn at all times during lab)
- Clean short fingernails, no fingernail polish or acrylic nail covers (ENTIRE COURSE DURATION)
- Close toed shoes waterproof
- Appropriate clothes for lab

Technology Requirements

- The web/online portion of this course will occur through Canvas. All students must have access to a device with internet access to that allows students to retrieve and complete assignments through Canvas.
- Check Canvas and your Reedley College email accounts regularly (multiple times per week) for announcements.

NO FOOD, BEVERAGES, CELLULAR PHONES, PAGERS, OR PROFANITY AT ANY TIME!

If you or your electronics become a disturbance to the class, points will be deducted from your scores on assignments and you may be asked to leave.

Attendance and Drop/Add Policy

- You are required to attend **ALL** class sessions. There are NO excused absences from BIOL-31.
- Sign in sheets will be used in each class and a student may only sign in for themselves.
- If you miss the equivalent of 2 weeks of class before the drop deadline of the end of the 9th week of class I reserve the right to drop you from the course.
- If you miss more than 3 weeks of course hours, I will drop your course letter grade by 1 letter. If you miss more than 4 weeks of course hours, I will drop your course letter grade by 2 letters. If you miss more than 5 weeks of course hours, you will automatically fail the course.
- In order to avoid being dropped from this class you must complete the following tasks during week 1:
    1. Attend the first and second lecture.
    2. Attend the first and second lab.
    3. Complete the introduction discussion board on canvas.
    4. Post a profile picture to canvas
    5. Failure to complete all of the above will result in being dropped from this course after the first week of instruction.

- Plan your schedule so that you will arrive to class on time. This is particularly important with regards to the lab as explanations and directions are given in the first 30 minutes. You are required to read the lab exercises before the lab period in which it is to be performed.
- No formal break period is scheduled during the lab period. If it is necessary to leave, you must leave your lab coat in the lab, wash and dry your hands, and fit this short break in to the lab work schedule so all work is completed during the allotted time.
- If you should decide to drop this course for any reason, it is your responsibility to make the drop official. The drop deadline for this semester is_____. It is YOUR responsibility to make any drop official. Failure to officially drop a course could result in the administering of an "F" grade.

Late Assignments and Makeups

No late assignments will be accepted **EVER**. NO EXCEPTIONS. This includes all in person, and online assignments.

A. In the event of extenuating circumstance (as determined by the instructor) Lecture Exams can be made up unless arrangement with prior arrangement. You must arrange with the instructor before the scheduled exam period (at least 3 hours prior). Please note, all makeups must occur within 1 week of scheduled exam date.
B. Lab Exams can NOT be made up. Period. No makeups, no exceptions.
C. If you are late please report your tardy at the first break or end of class and it will be changed from as absence to a tardy. (3 tardies=1 absence).
D. Any student doing unsatisfactory work, failing, lack of participation (attitude), lack of following safety rules etc. may be dropped from the course at the discretion of the instructor. Plagiarism, in any form, will have consequences from earning a zero on an assignment to dismissal from the class.

Tests and Evaluations

Description	Possible Points
3 Lecture Exams (100 points each)	300
1 Final Exam (Cumulative)	150
10 Lab Quizzes (10 points each)	100
3 Laboratory Exams (100 points each)	300
1 Unknown Lab Report	30
16 Case Studies (3pts each)	50
4 Reading Assignments (10pts each)	40
1 Term Paper/Presentation	150
Total points	1,100
Extra Credit (see VII below)	Maximum of: 25

To calculate your grade, total all points earned and divide that number by the total points available (1,100). **Course grades are non-negotiable**; **Instructor reserves the right to curve individual tests and/or assignments. FINAL GRADES WILL NOT BE CURVED… ALSO, I DO NOT round up your grades to the next letter grade.**
The final course grade is based on:

Percent Range	Grade
90-100	A
80-89.99	B
70-79.99	C
60-69.99	D
Less than 60	F

Lecture exams may be any combination of multiple-choice, true-false, matching, short-answer and essay questions based on the main objectives of each chapter. Please note that I require correct spelling and grammar. If I can't read it, I can't grade it! Write neatly!

Lab exams will be practical based on the work done in the laboratory. They may include multiple choice, true-false, matching, essay and short answer questions.

Lecture final exam will be comprehensive. Since this course is a prerequisite for all other Biology classes, it is important that you retain as much knowledge as possible from this course to ease your way in the following semesters.

Quizzes Quizzes are given at random during the lab class period and last for 20 minutes, if you are late your quiz will still be collected 20 minutes from when the quiz began. Material may include and combination of multiple-choice, true-false, matching, and short answer questions.

Case Study/Term Paper will be assigned in the 5th week of class. At this time, the class will select a topic for presentation from the list of approved microorganisms. At the conclusion of the semester, each student will give a 10-15 presentation to the class describing their microorganism, and a formal written report must be submitted. Specific directions will be handed out in class.

Extra Credit At the discretion of the instructor extra credit MAY be available at intermittent points in the term, if you feel you have a borderline grade this is the only opportunity for grade increases.

***** I reserve the right to make changes in this syllabus with notification *****

Laboratory Conduct: (Please also refer to laboratory safety sheet for more comprehensive information)

A. Students are to maintain clean areas at all times. Keep unnecessary books, papers, purses, etc., off the laboratory tables.
B. Disinfectant laboratory tables at the beginning and at the end of every lab period.
C. Aseptic techniques are to be followed at all times.
D. Lab coats are to be worn in the lab at all times. Students with long hair must keep it contained with pins, clips, headbands, or rubber bands, etc. so that it will not sweep across desks, Bunsen burners, and/or microscopes. Legs are to be covered at all times. Close toed-shoes and socks are to be worn at all times.
E. Caution must be exercised in handling stains and other reagents, as they may be harmful to clothing, skin, eyes, floor, etc. Safety glasses must be worn when handling and using caustic or other dangerous chemicals. They are available in the classroom.
F. Any spills of living organisms must be reported to your instructor immediately! Should a spill occur and not be reported immediately, these are grounds for removal from the class.
G. If you spill on anything, bags, jackets, shoes, accessories, it WILL go into the autoclave for sterilization (and could be destroyed).
H. Food and drinks are NOT allowed in the laboratory! NEVER eat or drink in the laboratory and avoid putting any objects in your mouth. Some organisms used in class are potentially pathogenic or are pathogenic.
I. Wash your hands thoroughly and dry them before you leave the laboratory.
J. Adhere to the Reedley Community College rules of student dress and conduct.

IF YOU ARE UNDER THE AGE OF 18, YOU MUST HAVE A PARENT/GUARDIAN SIGNED CONSENT FORM TO WORK IN THE MICROBIOLOGY COURSE. YOU WILL NOT BE ALLOWED AROUND ANY MICROORGANISMS AND WILL BE DROPPED FROM THE COURSE IF THIS IS NOT COMPLETED

Communication Policy

The best way to get ahold of me it to email me at andrew.strankman@reedleycollege.edu or by sending me a direct message through canvas. Don't know how to send a message in canvas? Check out this quick guide How to send a message in canvas.

- Please allow a 24hr response time. I am very prompt with my email responses, however, there are times when it may take me up to 24hrs to respond. If you do not receive a response from me after 24hrs then please double check that you have the correct email address, and resend. Most likely, I didn't get it if I didn't respond quickly.
- Emailing and messaging can be used 24/7. If I expect to be away from my computer for any significant length of time, you will be notified in advance.

Office Hours

I hold regular office hours both digitally as virtual office hours and on campus in my office. During these hours, I am 100% guaranteed to be present in my office. My office is at Reedley College campus in room Life Science 5 (LFS-5). If you would like to meet with me outside of these office hours, please email me to arrange an appointment to meet. My virtual office hours are held through the canvas messaging function. You can expect an immediate response during this time frame if you message me.

Canvas

All lecture and lab handouts, lecture notes, course schedules, and announcements are available at https://scccd.instructure.com/login/ldap. Your user name and password will be discussed in class.

Professional Behavior is expected at ALL TIMES

Please respect other student, the laboratory materials, and me. No food, cellular phones, pagers, or profanity at any time! I am aware that emergencies arise, but place your electronics on silent or "manner" mode. Disruptive behavior that interferes with the teaching and learning processes will be cause for appropriate penalties as described under "University Policies" below.

Disruptive or unprofessional behavior as determined by instructor will result in a student being asked to leave the room, and be banned for the subsequent 2 class periods.

Food and/or liquids in the laboratory may result in deduction of points.

You will be given a Safety Rules sheet to sign in the lab, which delineates further safety procedures that you MUST follow. OTHER COURSES USE THE MODELS/MICROSCOPES AND THE LAB. PLEASE BE RESPONSIBLE. Do not use pencils to point out structures on the models. Please remember to clean up the lab after every exercise, as areas left dirty or messy at the end of the period will result in those student groups being **docked 5 points** for every offense.

Because of the use of opportunistic human pathogenic organisms in this course; If you are under 18, you will not be able to be enrolled in the course.

No food or beverages allowed. Cell phone use will not be tolerated in this class; turn off your cell phones prior to class. Students are allowed to do audio recordings of lectures but not video. Web or internet posting of recorded lecture materials are not allowed. Laptops may be used in this class; laptop users should sit in the back row to avoid distracting others.

Children In Class: In order to promote a positive learning environment, please make arrangements for your child's care while class is in session. Do not bring children to class.

Cell Phones: Cell phones that are used or go off in class will be confiscated until the end of the class hour. No iPods are allowed in class.

No food, open beverages are allowed in the class at anytime. No profanities are allowed in class.

Dress code: In order to participate in lab activities, wearing shoes with closed toes is required.

Drops: You have until the end of the 9th week to drop the class. If you elect to do so, drop yourself. Do not assume you have automatically been dropped. After the 9th week you must be assigned a grade by state law, whether you attend class or not.

Tutoring: Tutors are available in the tutorial center. If you have not had a biology class since high school, working with a tutor will get you up to speed. The tutors are former students who know how to study for the class. “With this statement on my course syllabus, I am referring each of my enrolled students in need of academic support to tutorial services. Referral reason: Mastering the content, study skills, and basic skills of this course is aided by the use of trained peer tutors”.

College Policies

The university has several policies that you will be expected to adhere to in my course. The **Policy on Students with Disabilities, the University Honor Code, the Policy on Cheating and Plagiarism**, a **statement on copyright**, and the **university computer requirement**, portions of which are below, can all be found in the University Catalog (Policies and Regulations) and Class Schedule.

“Students at the Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share responsibility for seeing that their education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.” Reedley College Catalog pg. 45 o Please see Disciplinary Procedures in the Student Conduct Standards and Grievance Procedures Handbook available in the Vice-President of Student Services office, or at the link listed below. For a comprehensive list of Student Conduct Standards, see: http://reedleycollege.edu/index.aspx?page=233

If you have a verified need for an academic accommodation or materials in alternate media (e.g. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible.

Cheating and Plagiarism:

I DO NOT TOLERATE CHEATING. PERIOD. Most of you are entering into the health care field and could harm or seriously injure other human beings if you do not know the basic information in this course.

Any student caught cheating or plagiarizing will be subject to the Reedley College disciplinary procedures (review the Reedley College catalog section on academic dishonesty). Electronics of any kind are not permitted during exams and will result in an automatic zero for that exam.

Students with diagnosed disabilities should contact the Disabled Students Programs and Services' (DSP&S). Please give me a copy of the letter you receive from DSP&S detailing class accommodations you may need. If you require accommodation for test-taking please make sure I have the letter no less than three days before the test. If you have a need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

Tentative Schedule

Please bring your textbook to lecture and your textbook and lab manual to every lab. This is very important! Schedule is subject to change with notification from instructor.

Week	Dates		Lecture (Book Chapter)	Laboratory Experiments
1	Tue	1/14	Introduction, and Syllabus Historical Developments in Microbiology (1)	Laboratory Safety Use and Care of the Microscope
1	Thu	1/16	Historical Developments in Microbiology (1) Microscopes & Staining Techniques (3)	Examination of Living Microorganisms
2	Tue	1/21	Microscopes & Staining Techniques (3)	Microscopic Measurements (Handout) **Quiz 1**
2	Thu	1/23	Anatomy of Bacteria I (4)	Microbes in the Environment
3	Tue	1/28	Anatomy of Bacteria I (4) Microbial Growth (6)	Transfer of Bacteria: Aseptic Technique **Quiz 2**
3	Thu	1/30	Microbial Growth (6) Control of Microbial Growth (7)	Preparation of Smears and Simple Staining
4	Tue	2/4	**Lecture Exam 1 (1,3,4,6)**	Negative Staining
4	Thu	2/6	Control of Microbial Growth (7)	Gram Staining
5	Tue	2/11	Important Biological Molecules (2)	Acid Fast Staining Structural Stains: Endospore **Quiz 3**
5	Thu	2/13	Important Biological Molecules II (2)	Morphologic Unknown (Handout)
6	Tue	2/18	Microbial Metabolism I (5)	**Lab Exam 1** Dilution Techniques and Calculations (Homework)
6	Thu	2/20	Microbial Metabolism II (5)	Isolation of Bacteria by Dilution Techniques
7	Tue	2/25	Microbial Genetics I (8)	Special Media for Isolating Bacteria **Quiz 4**
7	Thu	2/27	Microbial Genetics I (8-9)	Carbohydrate Catabolism
8	Tue	3/3	Microbial Genetics II (9)	Fermentation of Carbohydrates **Quiz 5**
8	Thu	3/5	Classification of Microorganisms (10)	Protein Catabolism 1 & 2
9	Tue	3/10	**Lecture Exam 2 (7,2,5,8,9)**	Respiration
9	Thu	3/12	Bacteria I (11)	Oxygen and the Growth of Bacteria
10	Tue	3/17	Bacteria II (11)	**Lab Exam 2**
10	Thu	3/19	Fungi, Protozoans, and Helminths (12)	Determination of a Bacterial Growth Curve: The Role of Temperature (Handout) Physical Methods of Control: Heat
11	Tue	3/24	Fungi, Protozoans, and Helminths (12)	Physical Methods of Control: Ultraviolet Radiation **Quiz 6**
11	Thu	3/26	Viruses I (13)	Chemical Methods of Control: Antiseptics and Disinfectants

			Rough Draft Term Paper Due (Sunday 11:59)	
12	Tue	3/31	Viruses II (13)	Chemical Methods of Control: Antimicrobial Drugs **Quiz 7**
12	Thu	4/2	Principles of Disease and Epidemiology (14) **Peer Review Due Rough Draft Term Paper (Sunday 11:59pm)**	Protozoa
13	Tue	4/7	**SPRING BREAK NO CLASS**	
13	Thu	4/9	**SPRING BREAK NO CLASS**	
14	Tue	4/14	Principles of Disease and Epidemiology (14) Mechanisms of Pathogenicity (15)	Effectiveness of Hand Scrubbing **Quiz 8**
14	Thu	4/16	**Lecture Exam 3 (10,11,12,13 & Disease List)** **Final Draft Term Paper Due (Sunday 11:59pm)**	Fungi: Yeasts and Molds
14	Tue	4/21	Mechanisms of Pathogenicity (15) Non-Specific Defenses of the Host I (16)	Bacteria of the Skin Bacteria of the Respiratory Tract Bacteria of the Mouth **Quiz 9**
15	Thu	4/23	Non-Specific Defenses of the Host II (16)	PGLO Genetic Transfer (Handout)
15	Tue	4/28	The Immune Response II (17)	**Lab Exam 3** Unknown Identification
16	Thu	4/30	The Immune Response II (17)	Unknown Identification
16	Tue	5/5	Antimicrobial Drugs (20)	Unknown Identification **Quiz 10**
17	Thu	5/7	Antimicrobial Drugs (20)	Unknown Identification
18	Tue	5/12	Microbiology of Water (27)	Unknown Identification
18	Thu	5/14	Final Exam Review	Unknown Identification Laboratory Clean up
19	Tue	5/19	**Final Exam (Cumulative) PHY 76: 12:00-1:50pm**	Finals: No Labs

Chapters: 21, 22,, 23, 24, 25, & 26. Read for Content. This material will NOT be covered in lecture. You will be tested on this material in Examination 3. I would suggest that you begin reading this material at your earliest convenience. Further instructions will follow in lecture.

Important Dates

- January 24 (F):Last day to drop with full refund
- January 29 (F): Last day to add/drop a class (no "W" on transcript)

- February 21 (F): Last day to declare pass/no pass (P/NP) grade option
- March 13 (F): Last day to be dropped with a “W”