

## Biology 31 (BIOL 31) Microbiology

<i>Semester: Spring 2019</i>	<i>Reedley Community College</i>
Instructor: Andrew Strankman	<i>Class No. 57187</i>
Email: andrew.strankman@reedleycollege.edu	Lecture Times (LFS 6): Tu/Th: 5:15-6:30PM
Phone: 559-638-0300 ext. 3499	Lab Times (LFS 6): Tu/Th: 6:30-9:35PM
Office: LFS 10	
Office Hours: Tu/Th: 4:00-5:00PM We: 12:00-12:50PM (in tutorial center) Fr: 11:00-11:50AM (digital via skype)	
<i>Date: 01/14/19 - 05/24/19</i>	*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 9<sup>th</sup> 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. Lecture Exams cannot be made up unless arrangement is made prior to the exam or under extenuating circumstances with prior arrangement. You must arrange with the instructor before the scheduled exam period (at least 3 hours prior).
- 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 Lecture/Lab Quizzes (10 points each)	100
3 Laboratory Exams (100 points each)	300
1 Unknown Lab Report	30
7 Case Study/Articles (10 points each)	70
1 Term Paper/Presentation	<u>150</u>
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** will occur on dates specified on the course schedule. Quizzes are given at random during the 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. 10 quizzes will be given, your lowest score will be dropped.

**Case Study/Term Paper** will be assigned in the 5<sup>th</sup> 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

- 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 is to email me at [andrew.strankman@reedleycollege.edu](mailto: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 11 (LFS-11). This room is located inside of the back of a classroom, so you will have to enter there, before coming to my office. 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.

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 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.

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 9<sup>th</sup> week to drop the class. If you elect to do so, drop yourself. Do not assume you have automatically been dropped. After the 9<sup>th</sup> 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!

Week	Dates	Lecture (Book Chapter)	Laboratory Experiments
1	Tue 1/15	Introduction, and Syllabus Historical Developments in Microbiology (1)	<b>Laboratory Safety</b>
1	Thu 1/17	Historical Developments in Microbiology (1) Microscopes & Staining Techniques (3)	Microscopy and Aseptic Technique
2	Tue 1/22	Microscopes & Staining Techniques (3) <b>Quiz 1</b>	Viewing Live Organisms
2	Thu 1/24	Anatomy of Bacteria I (4)	Microscopic Measurements
3	Tue 1/29	Anatomy of Bacteria I (4) Microbial Growth (6) <b>Quiz 2</b>	Simple Staining and Media Making
3	Thu 1/31	Microbial Growth (6) Control of Microbial Growth (7)	Negative Staining
4	Tue 2/5	<b>Lecture Exam 1 (1,3,4,6)</b>	Gram Stain
4	Thu 2/7	Control of Microbial Growth (7)	Acid Fast and Endospore Stains
5	Tue 2/12	Important Biological Molecules (2)	<b>Lab Exam 1</b>
5	Thu 2/14	Important Biological Molecules II (2)	Environmental Microorganisms
6	Tue 2/19	Microbial Metabolism I (5) <b>Quiz 3</b>	Transfer of Bacteria
6	Thu 2/21	Microbial Metabolism II (5)	Isolation of Bacteria by Dilution and Streak Plate Technique
7	Tue 2/26	Microbial Genetics I (8) <b>Quiz 4</b>	Carbohydrate Catabolism
7	Thu 2/28	Microbial Genetics I (8-9)	Fermentation of Carbohydrates
8	Tue 3/5	Microbial Genetics II (9) <b>Quiz 5</b>	Differential/Selective Media
8	Thu 3/7	Classification of Microorganisms (10)	DNA
9	Tue 3/12	<b>Lecture Exam 2 (7,2,5,8,9)</b>	Protein Metabolism I&2
9	Thu 3/14	Bacteria I (11)	Respiration Nitrate/Catalase/Entero/Oxidase
10	Tue 3/19	Bacteria II (11) <b>Quiz 6</b>	<b>Lab Exam 2</b>
10	Thu 3/21	Fungi, Protozoans, and Helminths (12)	Oxygen Requirements and pH/Osmotic Pressure
11	Tue 3/26	Fungi, Protozoans, and Helminths (12) <b>Quiz 7</b>	Physical Methods of Control: Heat
11	Thu 3/28	Viruses I (13)	UV Radiation

12	Tue 4/2	Viruses II (13) <b>Quiz 8</b>	Disinfectants and Antiseptics
12	Thu 4/4	Principles of Disease and Epidemiology (14) <b>Rough Draft Term Paper Due (Sunday 11:59)</b>	Chemical Methods of Control: Antimicrobial Drugs
13	Tue 4/9	Principles of Disease and Epidemiology (14) Mechanisms of Pathogenicity (15)	Effectiveness of Hand Scrubbing
13	Thu 4/11	<b>Lecture Exam 3 (10,11,12,13 &amp; Disease List)</b> <b>Peer Review Due Rough Draft Term Paper (Sunday 11:59pm)</b>	Yeasts and Molds
		<b>Spring Break April 15-19 NO CLASS</b>	
14	Tue 4/23	Mechanisms of Pathogenicity (15) Non-Specific Defenses of the Host I (16) <b>Quiz 9</b>	Protozoans
14	Thu 4/25	Non-Specific Defenses of the Host II (16)	Flora of the Mouth, Throat, and Skin
15	Tue 4/30	The Immune Response II (17) <b>Quiz 10</b>	Isolation of Unknowns
15	Thu 5/2	The Immune Response II (17) <b>Final Draft Term Paper Due (Sunday 11:59pm)</b>	Isolation of Unknowns
16	Tue 5/7	Antimicrobial Drugs (20) <b>Quiz 11</b>	<b>Lab Exam 3</b>
16	Thu 5/9	Antimicrobial Drugs (20)	Isolation of Unknowns
17	Tue 5/14	Microbiology of Water (27) <b>Quiz 12</b>	Isolation of Unknowns
17	Thu 5/16	Final Exam Review	Presentations/Clean up
18	Tue 5/21	<b>Final Exam (Cumulative) LFS-6: 5:00-6:50PM</b>	

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 25: Last day to drop with full refund
- February 1: Last day to add/drop a class (no "W" on transcript)
- February 8: Last day to declare pass/no pass (P/NP) grade option
- March 8: Last day to be dropped with a "W"