



BIOL 2060: Microbiology, Spring 2020

Course Description

Welcome! This course is designed to help you gain a broad understanding of microbiology. To achieve this, we will study the microbial world from several perspectives, including biochemistry (atoms/molecules and cells), environmental microbiology, taxonomy, and medicine. The knowledge and understanding of the microbial world that you obtain in this course can be applied to other courses, your career, and your daily life.

Course Objectives

In this course, you will:

- gain **factual knowledge** (terminology, classifications, methods, and trends in microbiology)
- learn **fundamental principles** (general mechanisms and theories in microbiology)
- **develop specific skills** that are used by medical and lab professionals (microscopy, diagnostic tests, and aseptic technique)

Course Instructor: Dr. Habashi

Contact information: Use the Canvas inbox (allow 24 h for a response; expect delays on weekends/holidays).

Office location/office hours:

- Tuesdays, 1:45–2:45 PM, and by appointment; Milton P. Miller Bldg. Room 171B

Class meetings

Sections	Lecture	1 st Lab Session	2 nd Lab Session
Brigham	T/R, 3:00-4:30 PM (Miller Bldg. 154)	T, 12:30-2:30 PM (Miller Bldg. 173) T, 4:45-6:45 PM (Miller Bldg. 173)	R, 4:45-5:30 PM (Miller Bldg. 173) R, 5:45-6:30 PM (Miller Bldg. 173)

Required materials*

1. "Microbiology—An Introduction" 12th Edition by Tortora, Funke, and Case. 2013. Pearson. (ISBN 9780321929150)
2. "cereus Fun: An Introduction to Microbiological Techniques" by Dr. J. Habashi and H. Ahern. 2019. Download free on Canvas.
*I have found the textbook for as little as \$13 online, so shop around. Alternatively, the textbook can be purchased from the USU Campus Store. Go to "<http://campusstore.usu.edu/>" or call 800-662-3950. A copy of the text is also on reserve at the Brigham City campus testing center (by appointment only).

Lab fee

As part of your registration for this class you were required to pay a \$120.00 lab fee. This fee is used to buy the materials used by students in the weekly labs.

General Course Requirements

You are required to attend and actively participate in all lectures and labs, and to complete all assigned readings before coming to each class meeting. This is a challenging course with a lot of interesting material to cover; **1–2 hours of study per day outside of class time is recommended**. Read the syllabus carefully and discuss any questions with your instructor. Adjustments may be made to the class schedule during the semester; however, lab test and exam dates will not change. Adjustments will be posted on Canvas. By continuing in the course after reading the syllabus, you are indicating that you accept the terms of the syllabus.

Grading

Grades will be based on the following assessments. All scores in the grade book (except the final exam) will be considered finalized on Wednesday, 4/22/20, at 5:00 PM. No special projects will be offered to improve your grade.

Evaluation method	# of points possible
Lecture Assessments and Quizzes	25
Lab Assessments and Participation	75
Lab Tests	100
Lecture Exams	300
Final Exam	200
TOTAL	700

Lecture Assessments and Quizzes

Regular attendance and participation are essential parts of this course.** To promote this, in-class or outside assignments/quizzes based on the day's assigned readings/lecture material will be administered at random points during the semester. These assessments are due when called for; therefore, it is vital to arrive to class on time and not to leave early. No late assignments or quizzes will be accepted (so never leave the lecture room without turning in your paper), and there are no makeups.

**About Kaltura: Kaltura is a software tool that allows faculty to make recordings of a class meeting. It's a great way to review lecture material; however, like all technology, it occasionally fails. Also, it is not intended to replace class attendance/participation. I plan to make Kaltura recordings of our lectures; however, it is NOT a guarantee. If a class meeting doesn't get recorded, I will not post a replacement. Also, if lecture attendance or participation falls during the semester, I will stop making Kaltura recordings. Thus, it is important to attend and participate in all class meetings.

Lab Assessments and Participation

Each lab will have 5 points of credit associated with it, except for Lab 13 (which will have additional assignment points). To prevent illness/emergencies/and other unforeseen urgent events from affecting your grade, your lowest lab score will be dropped. To earn these points, you will be required to (1) complete a pre-lab assignment prior to coming to class each week, (2) participate fully in all lab activities and assessments, and (3) complete a lab assignment during class that will be handed in before you leave the lab session. **No make-up labs will be offered.** (Athletes and those with course/other University-sponsored conflicts should refer to the section of the syllabus regarding accommodations for their events.) You will not receive credit for a pre-lab if you do not attend the entire lab session.

- For all labs (except Lab 13), you will have **1 full week** to contest your score in the grade book. For Lab 13, you will have until 4/22/20 at 5:00 PM to contest your score. **Submit all questions about lab grades via the Canvas inbox to your lab instructor.** Once each deadline has passed, no adjustments will be considered.

You will receive a zero if you attend a lab section other than the one you are registered for, or if you fail to follow proper lab safety procedures. Points will be automatically deducted for phone use, surfing the internet, outside conversations, bringing food/drink/gum into the lab, arriving late/leaving early, and/or not following the lab instructor's directions.

Lab Tests

- There will be two lab tests, worth 50 points each, given at the beginning of class on the dates listed in the schedule. Labs and lab tests are written and graded by the lab instructors using the same procedures across all campuses. You must arrive to lab within the first 15 minutes of class on test days, or you will receive a zero. **Make-up lab tests will be given only with prior approval from your lab instructor. All make-ups will have 10% deducted from the score.**
- After each lab test is graded, you will have 3 business days to contest your score. Submit all questions to **your lab instructor** via Canvas. After that, no score adjustments will be considered.

Lecture Exams

There will be 4 lecture exams, each composed of ~50 questions and worth 100 points each, given on the dates listed in the schedule. You will take each exam at a USU testing center. It is your responsibility to make your own testing center appointments, and picture ID will be required for each exam (digital reproductions are not acceptable). You are responsible for knowing testing center hours and policies. Do not make a testing center appointment during lab time. **No make-up exams will be given for any reason;** however, to prevent illnesses/emergencies/and other unforeseen urgent events from affecting your grade, the lowest of your 4 scores will be dropped. Exam questions will be formulated based on the assigned readings, lectures, handouts, videos, articles, class discussions/demonstrations/labs/assignments, and other materials distributed in class or posted on Canvas. You may bring a pen/pencil and basic calculator to each exam.

As a reminder of the need for academic integrity, you will sign an exam honesty statement prior to taking each test; this paper will also be your scratch paper. Be sure to turn in your exam honesty statement before leaving the testing center; otherwise, you'll receive a zero on the test. Also, no books, notes, book bags, or bulky jackets will be allowed in the testing center, so plan ahead.

- You will have 1 full week from the date of each lecture exam to contest your score. **Submit all questions via the Canvas inbox to Dr. Habashi.** After the week is up, no score adjustments will be considered.
- **You are invited to meet with Dr. Habashi any time before 5:00 PM on 4/20/20 to review your exams.**

Final Exam

A comprehensive final exam worth 200 points will be given from Thursday, 4/23/20 to Friday, 4/24/20. You will take the final at a USU testing center. You will need to make your own testing center appointment, and photo ID will be required. You are responsible

for knowing testing center hours and policies. **There is no make-up for the final. The exam may not be taken early, except in exceptional circumstances and with prior approval from Dr. Habashi.**

Grading scale (grades are not rounded):

Percentage	Grade
93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
60-66%	D
59% and below	F

Need extra help?

- **Dr. Grant Wilson** (Lab instructor), E-mail through Canvas inbox. Office hours (Miller Bldg. Room 173): Thursdays @ 3:30-4:30 PM, and by appointment.
- **Autumn Kelsch** (Tutor), E-mail through Canvas inbox. One-on-one tutoring by appointment. Reviews to be announced.

Classroom Policies and USU Student Information

Unacceptable Classroom Behavior:

Behavior that disrupts the learning/teaching environment will not be tolerated. If you engage in disruptive behavior, I will ask you to stop. If it happens again, you may be asked to leave the room (and possibly the course) so that other students can benefit from the limited amount of class time available. The facilitators at each campus will report disruptive behavior to the instructor.

1. Once class has started, **all cell phones must be put away (not on your desk, in your hand, or on your lap)**. No outside conversations are permitted. Use of laptop computers/tablets is permitted only for purposes related to the class.
2. Only students registered for the course are allowed to attend class sessions. Children, spouses, friends, etc. of students will not be permitted in the classroom during class.

For a full description of USU's policy on classroom incivility, see <http://www.usu.edu/policies/pdf/Classroom-Incivility.pdf>.

Withdrawal Policy and "I" Grade Policy:

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of 2 weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

Student Athletes:

Student athletes who will miss class due to team travel must make arrangements with Dr. Habashi through Canvas **at least 10 days prior to the date of travel**. Written notification from USU regarding team travel is required before any accommodations will be considered.

Course Conflicts:

Students with a course conflict due to a University-sponsored event or another USU course must contact Dr. Habashi through the Canvas inbox **at least 10 days prior to the date of the conflict** to request accommodations; otherwise, no accommodations will be considered. Written documentation from University staff/faculty will be required before any accommodations will be considered.

Class Cancellations:

Unless the USU-Brigham City campus is closed by President Cockett, classes will be held as scheduled for all students. Should closure occur, your instructor will post instructions for you as an "Announcement" on Canvas. To stay informed, visit the Personal Information page on Banner and update your "Code Blue Alert" phone number.

Honor Code Policy:

As stated in The Student Code, "Each student has the right and duty to pursue his or her academic experience free of dishonesty. The Honor System is designed to reinforce the higher level of conduct expected and required of all Utah State University students." Upon admission to the University, you agreed to abide by this Honor Code by signing the Honor Pledge, which reads: "I pledge, on my honor, to conduct myself with the foremost level of academic integrity." Complete academic honesty is expected in this course. Cheating on exams or plagiarism on written assignments will result in a failing grade and may result in further action according to University policy.

Accommodation for Disabilities:

The Americans with Disabilities Act states: "Reasonable accommodation will be provided for all persons with disabilities in order to ensure equal participation within the program." If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center (435) 797-2444, preferably during the first week of the course. Any request for special consideration related to attendance, pedagogy, taking of examinations, etc., must be discussed with and approved by the instructor. In cooperation with the Disability Resource Center, course materials will be provided in alternative format (e.g. large print, audio, diskette, or Braille) upon request.

Grievance Process:

Students who feel they have been unfairly treated...may file a grievance through the channels and procedures described in the Student Code: <http://www.usu.edu/student-services/pdf/StudentCode.pdf#page=3> (Article VII. Grievances, pp. 27-36).

Course communications:

Email is an official form of communication at USU. Any communication to you about this course will be sent to the email address you have listed in Canvas as your preferred address. You are responsible for any information conveyed to you at that email address.

To ensure that Canvas is using the email account you prefer, do the following:

- Log in to Canvas and click on the link "Profile" at the top right of the page.
- Click on "Notifications" at the left side of the screen.
- Verify your email address.
- You may also opt to receive course notifications via text on your cell phone. Click the downward arrowhead to the right of "Email me at" on the "Notifications Preferences" page to bring up the option "Text my Cell at."

It is your responsibility to check your Canvas account at least once a day so that you do not miss announcements or emails to the class. All questions regarding academic progress or grades must be sent via the Canvas inbox.

To log in to Canvas, go to: canvas.usu.edu (no "www"). Your username is your Banner username (your "A" number) and your password is your BANNER password. BIOL 2060 should appear under the heading "Courses."

- **For help with Canvas**, contact the IT service desk: **435-797-HELP (4357)** or 1-877-878-8325.

Diversity Statement:

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact one of the following: at USU Brigham City, contact Jill Rasmussen, Room D102, (435) 919-1246; at other regional campuses, contact your advisor, or; Moises Diaz, Director of Multicultural Student Services (435) 797-1733, moises.diaz@usu.edu; James Morales, Vice President of Student Services (435) 797-1712, james.morales@usu.edu; Ann Austin, Vice Provost for Faculty Development and Diversity, ann.austin@usu.edu; Maure Smith, GLBTA Services, maure.smith@usu.edu; Steven Russell, Student Advocate (435) 797-1720, s.r.@aggiemail.usu.edu. You can learn about your student rights by visiting: www.usu.edu/student-services/studentcode.

Emotional and Mental Wellbeing:

School can be a very stressful experience. Utah State University has a mission to support students in all facets of life, including their emotional well-being. All USU students have access to confidential mental health services through Counseling and Psychological Services (CAPS). This includes a full range of counseling services, workshops, and support/therapeutic groups. If you live in the Logan area, CAPS is located in the Taggart Student Center (TSC 306, 435-797-1012). If you live outside the Logan area, please contact Justin Barker at justin.barker@usu.edu, Tammy Taylor at tammy.taylor@usu.edu, or Kim Meyers at kimberly.meyers@usu.edu. CAPS-RC has the capability to provide you with mental health services regardless of the location of your regional campus. If suicide is an issue, you can get help from the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

If you or someone you know has experienced sexual assault, please contact the Sexual Assault and Anti-Violence Information office (SAAVI) at 435-797-7273 or see their website at www.usu.edu/saavi/, or contact the CAPSA 24-hour crisis line at (435) 753-2500. If you or someone you know needs emergency services for trauma or life-threatening situations please call 911.

Anticipated Weekly Schedule

Week	Date	Topic (Lecture #)	Chapter (Text pages)
1	1/7	Course Intro/The Microbial World and You (1)	1 (pp. 1-23)
1	1/9	Chemical Principles (2)	2 (pp. 24-50)
1		Lab 1: Introduction/Biosafety practices & procedures for the microbiology laboratory	
2	1/14	Observing Microorganisms Through a Microscope (3)	3 (pp. 51-71)
2	1/16	Functional Anatomy of Prokaryotic and Eukaryotic Cells (4)	4 (pp. 72-106)
2		Lab 2: The microscopic world	
3	1/21	**LECTURE TEST 1** during testing center open hours (testing ends 1/22)	
3	1/23	Functional Anatomy of Prokaryotic and Eukaryotic Cells (5)	4 (pp. 72-106)
3		Lab 3: Bacteriological culture methods	
4	1/28	Microbial Metabolism (6)	5 (pp. 107-148)
4	1/30	Microbial Growth (7)	6 (pp. 149-175)
4		Lab 4: The human skin microbiome project	
5	2/4	Control of Microbial Growth (8)	7 (pp. 176-200) and 28 (pp. 794-798)
5	2/6	Microbial Genetics (9)	8 (pp. 201-237)
5		Lab 5: Differential staining techniques	
6	2/11	**LECTURE TEST 2** during testing center open hours (test opens 2/10)	
6	2/13	Bacteria (10)	10 (pp. 272-276), 11 (pp. 290-318), 21 (pp. 581-589) 22 (pp. 609-618) 23 (pp. 644-655), 24 (pp. 678, 681-690), 25 (pp. 716-724), 26 (pp. 751-760)
6		Lab 6: Metabolism, physiology, & growth characteristics of cocci	
7	2/18	Bacteria (11)	10 (pp. 272-276), 11 (pp. 290-318), 21 (pp. 581-589) 22 (pp. 609-618) 23 (pp. 644-655), 24 (pp. 678, 681-690), 25 (pp. 716-724), 26 (pp. 751-760)
7	2/20	Fungi and Algae (12)	12 (pp. 319-357), 21 (pp. 595-597), 22 (pp. 626-627), 24 (pp. 699-702), and 26 (pp. 764-765)
7		**Tuesday, 2/18/20: LAB TEST #1** (covers labs 1-6)	
8	2/25	Protozoans and Multicellular Parasites (13)	12 (pp. 319-357), 21 (pp. 598), 22 (pp. 627-630), 23 (pp. 661-666), 25 (pp. 733-741), 26 (pp. 765-767)
8	2/27	Viruses, Viroids, and Prions (14)	13 (pp. 358-388), 21 (pp. 590-595), 22 (pp. 618-626, 630-632), 24 (pp. 680, 695-698), 25 (pp. 725-732), 26 (pp. 762-764)
8		Lab 7: Metabolism, physiology, & growth characteristics of bacilli	
9	3/3	☺ No Class: Spring Break	
9	3/5	☺ No Class: Spring Break	
9		-No lab this week!	
10	3/10	**LECTURE TEST 3** during testing center open hours (test opens 3/9)	
10	3/12	Principles of Disease and Epidemiology (15)	14 (pp. 389-416)

10		Lab 8: The eukaryotes	
11	3/17	Principles of Disease and Epidemiology (15)	14 (pp. 389-416)
11	3/19	Microbial Mechanisms of Pathogenicity (16)	15 (pp. 417-438)
11		Lab 9: Lab time for EI completion	
12	3/24	Microbial Mechanisms of Pathogenicity (17)	15 (pp. 417-438)
12	3/26	Nonspecific Defenses (Innate Immunity of the Host) (18)	16 (pp. 439-467)
12		Lab 10: Lab time for EI completion/Virology video	
13	3/31	**LECTURE TEST 4** during testing center open hours (test opens 3/30)	
13	4/2	Specific Defenses (Adaptive Immunity) (19)	17 (pp. 468-491) and 18 (pp. 492-503)
13		Lab 11: Epidemiology and public health	
14	4/7	Antimicrobial Drugs (20)	20 (pp. 548-578)
14	4/9	Antimicrobial Drugs (21)	20 (pp. 548-578)
14		Lab 12: The war on germs	
15	4/14	Environmental Microbiology (22)	2 (p. 31) and 27 (pp. 771-793)
15	4/16	Environmental Microbiology (23)	2 (p. 31) and 27 (pp. 771-793)
15		**Tuesday 4/14/20: LAB TEST #2** (covers labs 6-12)	
16	4/21	☺ No Lecture: Get ready for the final!	
16	4/23 and 4/24	**COMPREHENSIVE FINAL EXAM** during testing center open hours	
		Lab 13 (Tuesday, 4/21/20; attendance required): Human skin microbiome project presentations	