

BIOL 2060: Elementary Microbiology

Utah State University Eastern

Spring 2020 - 4 credits

Lecture: MT; 1:30-2:45pm; Reeves 231

Lab: W 1:30-4:20pm; Reeves 231

Instructor: Dr. Wayne Hatch, Reeves 264

Office Hours: R 10-12pm, F 1-4, and by appointment

Contact: wayne.hatch@usu.edu, 613-5393

Course Description:

Biology and role of microorganisms in the world around us, with emphasis on their contributions to human disease. Course includes lectures, an integral laboratory component. Not intended for biology majors.

This course is designed to encourage the student to explore:

- The diversity/uniqueness of microorganisms
- The body's interactions with microbes
- Characteristics of prokaryotic microbes and the diseases they cause
- Characteristics of viruses and the diseases they cause
- Characteristics of eukaryotic microbes and the diseases they cause
- The control of microbial growth
- The Human Microbiome

Pre-requisites:

USU 1350 or Biol 1010 or Biol 1500 or Biol 1610 or Biol 2320 or Biol 2420 or Chem 1010 or Chem 1110 or Chem 1210 or AP Biology or AP Chemistry with a score of 3 or above.

Course Fee:

This course has an associated \$30 fee. This will be used to purchase supplies for lab which includes: media for culturing and characterizing bacteria, plastic and glassware, soap and sanitizer, gloves, paper towels, cotton swabs, and genetic sequencing supplies.

Textbook:

Microbiology by OpenStax. The text can be obtained electronically by visiting <https://openstax.org/details/books/microbiology> or a print version is available at the USU bookstore.

Course design:

This course consists of one lecture period and one lab per week. The lecture period will consist of lecture, discussion and other activities designed to encourage student learning of the objectives listed above. The lab period will include hands-on experiences designed to provide the student with experience and training in microbiological techniques.

Assessments:

Quizzes

Short 5 point quizzes will be given regularly throughout the semester. They will be administered in Canvas. Quiz questions will test understanding of previously discussed material.

Exams

Six written exams will be given and held in the testing center each worth 100pts testing on material discussed in lecture. Exam questions will consist of a variety of short answer questions to matching or multiple choice questions. Exams will be given in the testing center Wednesday, Thursday, and Friday of the week the exam opens which is listed on the course schedule at the end of the syllabus.

Lab

Each lab will be worth 20 points. As one of the main goal of the lab is to learn techniques, attendance and participation in each lab will earn 10. The other 10 points will consist of a report of the results obtained for each lab. This report will consist of your results, and any conclusions you may make about your results. Each section will be worth 5pts.

Lab Exam

A final lab exam will be given in the final lab period consisting of written questions and practical procedures and worth 50 pts.

Adopt a Microbe

Several adopt a microbe assignments will be given throughout the semester. This will require each student to participate in a discussion on Canvas by posting a response to a question about the characteristics of a chosen microorganism. Each participation will be worth 5pts and will be an all or nothing score.

Grading:

Final grades will be given according to the student's final percentage of all graded assignments and exams with the following breakdown.

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

• Quizzes	~40pts
• 6 exams worth 100 points each	600pts
• Lab Assignments	260pts
• Practical lab exam	50pts
• Adopt a Microbe discussion posts	20pts
Total points	~970pts

Expectations of Students:

I expect that as a student you will come to class ready to participate in each discussion or lecture as appropriate. This means that students should access the *learning objectives* posted for each lecture on Canvas. These can be used to provide a guide to taking notes while reading the text and attending class.

I also expect that you will avoid disrupting the class in general as well those immediately surrounding you. Many actions such as texting may seem to only affect the individual but generally also annoy and discourage the learning of the students around you.

Policies on attendance and make-up work:

Generally, students who attend class regularly and are attentive perform better in the class. Specifics about assignments, changes in the schedule/assignments/exams will typically only be announced in class. If you will be gone for a test or when an assignment is due, let Dr. Hatch know a day ahead of time so that I can accommodate you.

Canvas:

Canvas is where course content, grades, and communication will reside

<http://canvas.usu.edu>

Your username is your A# and your password is your global password. For Canvas, passwords, or any other computer-related technical support contact the IT Service desk. (435)797-4357. <http://it.usu.edu>

Academic Dishonesty:

Cheating and/or plagiarism are illegal and will not be tolerated. If a student is found guilty, the student may immediately fail the course and possible expulsion from the college. Any suspicion of an academic integrity violation (AIV) may be reported by the instructor to the university. As stated in student code Section VI-1 “Whenever an instructor reasonably suspects that a student has committed an academic integrity violation, the accused student shall be notified by the instructor of the violation and its consequences through use of the academic integrity violation form (AIVF) within seven days that a violation has occurred and that a sanction is appropriate.”

ADA Services:

If a student has a disability that qualifies under the Americans with Disabilities Act (ADA) and requires reasonable accommodation, that student should contact the Disability Resource Center for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, sensory, emotional, physical, or medical impairments. Students may contact the DRC if they are not certain whether a condition qualifies. Regional campus students may contact the DRC located in Room 1010 of the University Inn, 435-797-2444 (voice), 435-797-0740 (TTY) or toll free at 800-259-2966. USU Eastern students may contact the DRC located in room 223 of the JLSC, 435-613-5337. Please contact the DRC as early in the semester as possible.

USU Eastern Students may also schedule a therapy appointment with an on campus therapist by contacting the DRC at 435-613-5337.

Course Schedule:

Topics listed for each day correspond to the learning objectives posted in Canvas.

Week	Monday	Tuesday
<i>Jan 6-10</i>	Intro	Ch. 1 An Invisible World
<i>Jan 13-17</i>	Human Microbiome (TBA)	The Microscope (Ch. 2)
<i>Jan 20-24</i>	<i>Martin Luther King Jr. Day - No Class</i>	Prokaryotes vs Eukaryotes (Ch. 3)
<i>Jan 27-31</i>	Microbial Metabolism (Ch. 8)	Review - Exam 1
<i>Feb 3-7</i>	Microbial Genetics (Ch. 10-11)	Microbial Growth (Ch. 9)
<i>Feb 10-14</i>	Disease and epidemiology (Ch. 16)	Pathogenicity (Ch. 15) Exam 2
<i>Feb 17-21</i>	<i>President's Day - No Class</i>	Innate Immunity (Ch. 17)
<i>Feb 24-28</i>	Adaptive Immunity (Ch. 18)	Applications of Immunology (Ch. 20)
<i>Mar 2-6</i>	<i>Spring Break</i>	<i>Spring Break</i>
<i>Mar 9-13</i>	Disorders of the Immune System (Ch. 19)	Review - Exam 3
<i>Mar 16-20</i>	Prokaryote Diseases (Ch. 21-26)	Prokaryotic Diseases (Ch. 21-26)
<i>Mar 23-27</i>	Antibiotic Resistance (TBA)	Review - Exam 4
<i>Mar 30-Apr 3</i>	Viruses (Ch. 6)	Viral Diseases (Ch. 21-26)
<i>Apr 6-10</i>	Viral Diseases (Ch. 21-26)	Review - Exam 5
<i>Apr 13-17</i>	Eukaryotic Microbes (Ch. 5)	Eukaryote Diseases (Ch. 21-26)
<i>Apr 20-24</i>	Eukaryote Diseases (Ch. 21-26)	Control of Microbial Growth (Ch. 13) Antimicrobials (Ch. 14)
<i>Apr 27-30</i>	Final Exam (Given in Testing Center)	

Disclaimer: The schedule and assignments as part of this syllabus are tentative and subject to change. Any changes will be discussed in class.