

BIOL 2060: Elementary Microbiology

Utah State University Eastern

Spring 2018 - 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: An Introduction by Tortora, Funke, and Case. 10th or 11th edition ISBN: 978-0-321-74242-1

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 class at the beginning of lecture. 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

There will be four laboratory assignments to be turned in at the beginning of each subsequent lab. The content of these reports will be discussed in lab and will each be worth 10pts. Late lab reports will be docked 5pts. In addition, lab notebooks will be kept by each student and reviewed and graded 3 times in the semester by Dr. Hatch. These checks will be worth 20 points each. Finally, a comprehensive poster of your semester's research findings will be due at the end of the semester. This will be worth 50 points.

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 150pts

- Practical lab exam 50pts
 - Adopt a Microbe discussion posts 20pts
- Total points** ~860pts

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 me know a day ahead of time so that I can accommodate you. Missed quizzes cannot be made up.

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 8-12</i>	History of Microbiology (Ch. 1)	Diversity of Microbiology (Ch. 1)
<i>Jan 15-19</i>	<i>Martin Luther King Jr. Day - No Class</i>	Human Microbiome (TBA)
<i>Jan 22-26</i>	The Microscope (Ch. 3)	Prokaryotes vs Eukaryotes (Ch. 4)
<i>Jan 29-Feb 2</i>	Microbial Metabolism (Ch. 5)	Exam 1
<i>Feb 5-9</i>	Microbial Genetics (Ch. 8-9)	Microbial Growth (Ch. 6)
<i>Feb 12-16</i>	Disease and epidemiology (Ch. 14)	Pathogenicity (Ch. 15) Exam 2
<i>Feb 19-23</i>	<i>President's Day - No Class</i>	Innate Immunity (Ch. 16)
<i>Feb 26-Mar 2</i>	Adaptive Immunity (Ch. 17)	Applications of Immunology (Ch. 18)
<i>Mar 5-9</i>	<i>Spring Break</i>	<i>Spring Break</i>
<i>Mar 12-16</i>	Disorders of the Immune System (Ch. 19)	Exam 3
<i>Mar 19-23</i>	Prokaryote Diseases (Ch. 21-26)	Prokaryotic Diseases (Ch. 21-26)
<i>Mar 26-30</i>	Antibiotic Resistance (TBA)	Exam 4
<i>Apr 2-6</i>	Viruses (Ch. 13)	Viral Diseases (Ch. 21-26)
<i>Apr 9-13</i>	Viral Diseases (Ch. 21-26)	Exam 5
<i>Apr 16-20</i>	Eukaryotic Microbes (Ch. 12)	Eukaryote Diseases (Ch. 21-26)
<i>Apr 23-27</i>	Eukaryote Diseases (Ch. 21-26)	Control of Microbial Growth (Ch. 7) Antimicrobials (Ch. 20)
<i>Apr 30-May 4</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.