BIOLOGY 230: Principles of Microbiology, Spring 2019
Section 01: Tues, Thurs 11:30-12:45 am in ISC 131

Prerequisites: BIOL 222 (Genetics), CHEM 211 or 223 (Organic Chemistry). It is assumed that you have the knowledge from these courses and their pre-requisites.

Instructor
Dr. Betsy Hutchison
Office: ISC 359
Email: 585-245-5038
Office Hours: Mon 10-11 am, Fri 9-10 am, or by appointment.

Course Description
This course focuses on the structure, cultivation, physiology, ecology, and importance of microorganisms (including bacteria, archaea, eukaryotes, and viruses). Interaction of these microbes with each other and with humans, including aspects of symbiosis and disease, will be examined. Laboratory activities complement lecture material. Prerequisites: BIOL 222 and CHEM 211 or CHEM 223.

Laboratory Sections

Section 02	Tues	09:00 am-10:55 am, ISC 302
	Thurs	09:00 am-09:55 am, ISC 302
Section 03	Tues	01:30 pm-03:25 pm, ISC 302
	Thurs	01:30 pm-02:25 pm, ISC 302

Required Texts
Microbiology: an evolving science, 4th ed. Slonczewski & Foster.
W. W. Norton and Company. New York. 2017. ISBN 9780393602340.
*If you're using an older edition or an international edition, please note that you're responsible for the material in the required version of the textbook.

Course TA
The TA for this course is Taylor Moore (tem5@geneseo.edu). Taylor took the course during the Fall 2018 semester, and will be attending the Tuesday labs. She is available to help with lab (or lecture) material, and is a great resource for asking questions about the material, about lab technique, and about lab assignments.

Calculator
You'll need a simple calculator (with basic functions and logs). You will **not** be allowed to use cell phone calculators or graphing calculators during exams.

Grading

Exams (2 exams,100 pts each)	200 pts
Final Exam (cumulative)	100 pts
Homework Assignments (3; due dates TBA)	66 pts
Microbe Presentation	20 pts
Weekly quizzes (10, each worth 6 points)	60 pts

Lab Grades

Lab Notebook	10 pts
Presentation	20 pts
Individual Lab Report (1)	25 pts
Group Lab Reports (2)	50 pts
Lab Practical	25 pts
Biochemical Tests Assignment	5 pts
	Total: 581 pts

The following scale will be used to calculate final grades. Student point totals or grading scheme may be adjusted to reflect course difficulty or section differences at the instructor's discretion.

	B+ 87.0-89.9%	**C+** 77.0-79.9%		
A 93.0-100%	**B** 83.0-86.9%	**C** 73.0-76.9%	**D** 60.0-69.9%	**E** <60%
A- 90.0-92.9%	**B-** 80.0-82.9%	**C-** 70.0-72.9%		

Standard rounding procedures will apply. For example, an 82.94 would be rounded to a B-, and an 82.95 would be rounded to a B.

- Grade disputes must be initiated within one week from when the assignment was handed back. If you have a grade dispute, you must submit your original assignment along with a written justification of your answer.

- For each day that an assignment is late, you will lose 10 pts from your grade for that assignment.

Homework

- Due dates for homework assignments will be provided during the course. These assignments will be completed in groups, and one copy will be turned in per group. For each homework assignment, there will be a chance to evaluate your group members and their contributions to the group homework. Late homework assignments will NOT be accepted. There will be 3 homework assignments, and each will deal with solving microbiology-related problems and/or reading a scientific article.

Weekly Quizzes

- Quizzes will occur on **Thursdays** (of most weeks), and will cover the material from the previous two classes. Quizzes are designed to help you keep up with the lecture and reading material for the course. We will have 11 quizzes, and I will drop your lowest quiz grade. Since I drop the lowest quiz grade, I will not administer make-up quizzes except for extenuating circumstances or for university approved absences.

Microbe Presentation

- There are many pathogens (both viral and bacterial), and we'll only have time to cover a few throughout the semester. This assignment will allow you and your group members to make a brief informational presentation about a microbial pathogen of your choice. Your presentation should be short (5-8 minutes), include participation from all group members, and convey all of the information on the assignment rubric. You will also need

to be able to answer questions about this microbe. Group members are expected to contribute equally, and you will be evaluated by your peers for this assignment, just like for the HWs. You and your group will get a chance to sign up for a presentation date on the first day of class.

Exams

- Make up exams are NOT administered except under special circumstances (such as significant medical or family issues), No other excuses (vacations, weddings, travel, *etc*) will be accepted. Please notice the final exam date. If you have a legitimate scheduling conflict, make sure to let me know the two weeks of class. After that, I will not reschedule any final exams. Note: vacation plans are not legitimate scheduling conflicts.
- Final exam content: the final exam will be cumulative

Tips for Success

Come to class – important concepts will be covered in class, and you'll get the opportunity to ask questions and to discuss with your classmates. Reading the text is important, but cannot substitute for class attendance and participation.

Don't procrastinate - if you're struggling or don't understand something, get help from me during class or office hours. There are many resources available if you need help, use them!

Assigned readings for class: My suggestion is to read over the assigned reading before class. This will help familiarize you with the topics that will be covered, and if any topics are completely unfamiliar to you then you can do a more in-depth reading of that section. After lecture, take a more careful look at the assigned readings, using what we covered in class to focus your reading, and to prepare yourself for the quiz on Thursday.

Students with Disabilities

SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities. Accommodations will be made for medical conditions related to pregnancy or parenting. Students should contact Ms. Heather Packer in the Office of Disability Services (disabilityservices@geneseo.edu or 585-245-5112) and their faculty (Dr. Hutchison) to discuss needed accommodations as early as possible in the semester. Exams at the testing center should be scheduled for the same day as the exam is held in class.

Academic Dishonesty & Plagiarism

Students are expected to adhere to the University's policy on academic dishonesty and plagiarism, located in the student handbook. Academic dishonesty and plagiarism have serious consequences, and if you're struggling in class, please ask for help rather than resort to academic dishonesty! Academic dishonesty will result in a zero on the assignment or exam. In addition, a report will be filed to the department chair and Dean of the College, and a record of academic dishonesty will be placed in the student's file at the Dean of Students Office.

Tentative Schedule (subject to change at instructor's discretion)

Date	Subject	Reading
(R) 01/24	Introduction to course; What are microbes?	Ch 1
(T) 01/29	History of Microbiology; *Mycobacterium tuberculosis*	Ch 1
(R) 01/31	Microscopy – viewing microbial cells; Quiz 1	Ch 2
(T) 02/05	Microbial cell wall and membrane	Ch 3.1-3.3
(R) 02/07	Antimicrobial therapy; Quiz 2	Ch 27 (1091-1113; 1120-1129)
(T) 02/12	Specialized cell structures, motility, & chemotaxis; HW 1 due	Ch 3.6; pg 384-386
(R) 02/14	Bacterial culture, growth & development; Quiz 3	Ch 4
(T) 02/19	Bacterial culture, growth & development	Ch 4 (except 4.5)
(R) 02/21	Biofilms & Quorum Sensing; Quiz 4	Ch 4 section 5, Ch 10 pp 387-393
(T) 02/26	Microbial Genomes; HW 2 due	Ch 7 pg 235-240; 7.5; 8.6
(R) 02/28	Plasmids, Mobile Elements, CRISPR, HGT; Quiz 5	7.4, 9.1, 9.5, 9.6
(T) 03/05	Exam I (material through 02/26)	
(R) 03/07	Energetics & Catabolism; no quiz	Ch 13 (13.1-3); Ch 14 (14.1-3)
(T) 03/12	Organotrophy, Lithotrophy, & Phototrophy	Ch 14 (14.4-6)
(R) 03/14	Organotrophy, Lithotrophy, & Phototrophy; Quiz 6	Ch 14 (14.4-6)
(T) 03/19	--no class – SPRING BREAK--	--
(R) 03/21	--no class – SPRING BREAK--	--
(T) 03/26	Food Microbiology + guest speaker; HW 3 due	Ch 16.1-16.4
(R) 03/28	Origins and Evolution of Microbes; Quiz 7	Ch 17
(T) 04/02	Origins and Evolution of Microbes; Groups 1 & 2 Present	Ch 17
(T) 04/04	Viruses; Quiz 8	Ch 6
(T) 04/09	Viruses; Groups 3 & 4 Present	Ch 11 (11.1-3, 11.5)
(R) 04/11	Archaeal Diversity; Quiz 9	Ch 19
(T) 04/16	Exam II (material 02/28 - 04/09)	
(R) 04/18	Eukaryotic Diversity; no quiz	Ch 20

(T) 04/23	Human Microbiome & Innate Immunity; Groups 5 & 6 Present	Ch 23 (23.1-5)
(R) 04/25	Human Microbiome & Innate Immunity; Quiz 10	Ch 23 (23.1-5)

(T) 04/30	Epidemiology; Groups 7, 8, 9, 10 Present	Ch 28 (28.3-28.4)
(R) 05/02	Microbial Pathogenesis; Quiz 11	Ch 25 (25.1-6)

(T) 05/07	Microbial Pathogenesis	Ch 25 (25.1-6)

Friday 05/10	Final Exam (8:00-10:30 am)	cumulative exam