

Microbiology Lecture Syllabus
Biology 2200
10:30-11:20 M-W-F
Room: General Lectures 100

Winter 2020

Professor: Dr. Haidong Gu
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Office hours: 2 pm – 3 pm, Mondays and Tuesdays
Other hours may be scheduled on individual bases.

Objectives:

1. To fulfill the WSU General Education Life Science requirement and the core concepts of biological literacy. Students will be instructed in the principles and procedures of modern microbiology including the concepts of microbial growth and control, microbial structure & function, evolution and microbial diversity/adaption, and interactions of microbes with humans, plants and the environment. The influence of microbes on society will be emphasized by introducing microbial application in commercial products and microbial diseases in their co-evolution with host responses.

2. From the laboratory course, students will gain insight into the nature of scientific inquiry, the process by which knowledge is accumulated and accepted as illustrated, and the strengths and limitations of the scientific process and its progressive, self-correcting qualities. Observational and experimental skills will be imparted to students, using both traditional and discovery-based learning. The students will experience the scientific method first hand in performing experiments that reflect the current state of the art and demonstrate the principles underlying major concepts of modern microbiology. Students will also learn to properly record their data in a laboratory notebook.

Course Outcomes:

At the end of this course, students will be able to

1. explain the role microbes play in our environment/society
2. describe how microbes can be controlled and exploited for industrial application.
3. describe microbial diversity and the core features of prokaryotic versus eukaryotic cell structure and physiology.
4. describe basic concepts of medical microbiology and immunology
5. apply the principals of sterile technique and use the tools required to study microorganisms.

Course Credits: 5-credits

Students should expect to do 5 hours of in-class lab time and 1 hour out-of-class lab time per week.

Course Prerequisites:

Students are required to have completed BIO 1510 (Basic Life Mechanisms). Students who managed to enroll in this course without satisfying this prerequisite will probably not succeed in this course and for this reason will be required to drop it. Students who have questions regarding these prerequisites should see one of the Biological Science Department's Undergraduate Advisors during the first week of class.

Textbook:

MICROBIOLOGY, AN EVOLVING SCIENCE, 4th Edition (2017). Joan L. Slonczewski and John W. Foster. Published by W. W. Norton & Company.

Important Dates:

- Last day for tuition cancellation – **Friday, January 17, 2020**
- Last day to sign **Add** forms – **Friday, January 17, 2020** (except for the purpose of changing lab sections when and if appropriate).
- Last day to withdraw – **Sunday, March 22, 2020**.
- Final Exam – **Wednesday, April 22, 2020, 10:15 am to 12 pm**

1. See WSU policy at the Registrar's web site:

<http://sdcl.wayne.edu/RegistrarWeb/Registrar/policies.htm>

Students who request course withdrawals by March 24, 2019 will now receive one of these notations:

- “WP” Withdrawal with a passing grade earned to date
- “WF” Withdrawal with a failing grade earned to date
- “WN” Withdrawal never attended, or no graded work to date

2. Students who do not complete the semester will receive a grade of F if they do not withdraw from class by **Sunday, March 24, 2019**. **“Incomplete” grades will NOT be issued to students in poor standing who are seeking an alternative to a late drop.**

Honors Section: If you enroll in the honors section of this course, you will NOT be allowed to transfer to the non-honors section after two weeks following the start of the semester. If you are unable to complete the work for the honors section during the semester, you will be given the grade of “Incomplete” in the class. You will have one year to finish the work and change your grade from incomplete to a letter grade. Failure to complete the honors section work in the one year period will result in a change from an I to an F for the course.

Grades:

A total of 1000 points are possible for the course. Of these 1000 points, 600 points are from LECTURE and 400 points are from the LABORATORY (see laboratory syllabus).

Four hourly exams (120 points each) and a comprehensive final exam (240 points) will be given. The hourly exam with the lowest score will be dropped. The final cannot be dropped. Since the lowest hourly exam will be dropped, **NO MAKEUP EXAMS WILL BE GIVEN AND NO EXAMS WILL BE GIVEN IN ADVANCE.**

Grading summary:

Lecture

4 x 120 point one-hour exams	+480 points
Lowest hour exam dropped	-120 points
<u>Comprehensive final</u>	<u>+240 points</u>
Lecture total possible	600 points

Laboratory

Reading Assignments	+25 points
Pre-lab check	+25 points
Microscopy exercise	+5 points
Laboratory notebook	+ 95 points
Laboratory midterm	+100 points
<u>Comprehensive Lab Final</u>	<u>+150 points</u>
Lab total possible	400 points

TOTAL COURSE POINTS POSSIBLE: 1000 POINTS

Exam Corrections:

When each exam is returned, you will have **ONE WEEK** to correct errors in grading or to challenge the questions on the exam. Corrections and inquiries about specific exam questions must occur in person during office hours.

Final Course Grade:

Summary of final grade calculation: The scores for each exam are curved to the second highest score in that exam. Lab scores will be normalized according to the lab average vs. lecture average for each section. The normalized and curved total score is then converted into a percentage and a letter grade is assigned according to the table below.

Total Percentage	Final Grade
92% – 100%	A
90% – <92%	A-
88% – <90%	B+
82% – <88%	B
80% – <82%	B-
78% – <80%	C+
70% – <78%	C
65% – <70%	C-
63% – <65%	D+
57% – <63%	D
55% – <57%	D-
<55%	F

Lecture Policy:

Every effort will be made to begin and end lectures on time. Please try to be in your seats when class starts and do not leave class prematurely. See laboratory syllabus for laboratory attendance policies.

Talking in class:

As you are probably aware, in large classes talking by those around you can interfere with learning. Therefore, students who insist on talking during class will be asked to leave if they continue to disturb the lecture. Questions and other dialog with the instructor are, of course, encouraged.

Cheating Policy:

To acknowledge that most, if not all, students do not cheat, the following policy will be strictly observed in accordance with the WSU policy on cheating.

1. Any individuals caught cheating will automatically receive a grade of "F" for the course. In addition, charges may be filed in accordance with the university policy on academic honesty (<https://doso.wayne.edu/conduct/academic-integrity>). Read this carefully.
2. Picture identification must be provided upon request in the examination room.
3. You must arrive on time for the exam. Students who arrive after the first student has finished with the exam and left the room will not be allowed to take the exam.
4. Students will not be allowed to leave the room during an exam. Once a student has left the room, he or she will not be allowed to return.
5. Absolutely no talking among students will be tolerated during the exam.

Student Disability Services:

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services Department. SDS telephone number is (313) 577-1851 or (313) 577-3365 (TTD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

Academic Success Center:

The Academic Success Center offers FREE services to help students achieve academic excellence. Students can schedule an appointment with a learning specialist and/or register for a number of useful study skills and time management workshops. Information is available here: <http://success.wayne.edu>

Week	Lecture	Day	Date	Topic	Chapter
1	1	M	1/6/20	Microbial Life: Origin and Discovery	1
	2	W	1/8/20	Microbial Life: Origin and Discovery	1
	3	F	1/10/20	Microbial Cell Structure and Function	3
2	4	M	1/13/20	Microbial Cell Structure and Function	3
	5	W	1/15/20	Bacterial Culture, Growth and Development	4
	6	F	1/17/20	Bacterial Culture, Growth and Development	4
3		M	1/20/20	Martin Luther King Day – No Class	
	7	W	1/22/20	Environmental Influences and Control of Microbial Growth	5
	8	F	1/24/20	Environmental Influences and Control of Microbial Growth	5
4		M	1/27/20	Exam 1	1-5
	9	W	1/29/20	Genomes and Chromosomes	7
	10	F	1/31/20	Genomes and Chromosomes	7
5	11	M	2/3/20	Transcription, Translation, and Bioinformatics	8
	12	W	2/5/20	Transcription, Translation, and Bioinformatics	8
	13	F	2/7/20	Transcription, Translation, and Bioinformatics	8
6	14	M	2/10/20	Viruses – Bacteriophage	6, 11
	15	W	2/12/20	Viruses – Animal and plant viruses	6, 11
	16	F	2/14/20	Viral Molecular Biology	11
7		M	2/17/20	Exam 2	6-8,11
	17	W	2/19/20	Gene Transfer, Mutations and Genome Evolution	9
	18	F	2/21/20	Gene Transfer, Mutations and Genome Evolution	9
8	19	M	2/24/20	Molecular Regulation	10
	20	W	2/26/20	Molecular Regulation	10
	21	F	2/28/20	Biotechniques and Synthetic Biology	12
9	22	M	3/2/20	Energetics and Catabolism	13
	23	W	3/4/20	Energetics and Catabolism	13
	24	F	3/6/20	Electron Flow	14
10			3/9/20-3/14/20 Spring Break – No Class		
11	25	M	3/16/20	Biosynthesis	15
	26	W	3/18/20	Food and Industrial Microbiology	16
	27	F	3/20/20	Origins and Evolution	17
12		M	3/23/20	Exam 3	9-17
	28	W	3/25/20	Human Microbiota and Innate Immunity	23
	29	F	3/27/20	Human Microbiota and Innate Immunity	23
13	30	M	3/30/20	Adaptive Immune Response	24
	31	W	4/1/20	Adaptive Immune Response	24
	32	F	4/3/20	Microbial Pathogenesis	25
14	33	M	4/6/20	Microbial Pathogenesis	25
	34	W	4/8/20	Microbial Diseases	26
	35	F	4/10/20	Microbial Diseases	26
15	36	M	4/13/20	Exam 4	23-26
	37	W	4/15/20	Antimicrobial Therapy	27
	38	F	4/17/20	Antimicrobial Therapy	27
16	39	M	4/20/20	Clinical Microbiology and Epidemiology	28
		T	4/21/20	Study Day	
		W	4/22/20	Comprehensive Final: 10:15 am-12:00 pm Gen. Lectures 100	All