

MCB 100 – Introductory Microbiology – Fall 2019

Course Rubric: MCB 100 (3 credit hour, CRN#30499)

Course Meeting Time and Location: MWF, 2:00-2:50 pm, 2079 Natural History Building

Course Directors:

Brenda A. Wilson, PhD Professor, Department of Microbiology URL: http://mcb.illinois.edu/faculty/profile/wilson7 Office: B209 Chem Life Sci Lab (CLSL) Email: wilson7@illinois.edu Office Hours: Thursdays, 5:15-6:30pm, B124 CLSL	Collin Kieffer, PhD Assistant Professor, Department of Microbiology URL: http://mcb.illinois.edu/faculty/profile/collink/ Office: 325 Burrill Hall Email: collink@illinois.edu Office Hours: Tuesdays, 2:30-3:30pm, 333 Burrill
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Course TA: Mr. Zachary Aboff, Email: zaboff2@illinois.edu, will be assisting with grading and course logistics and will be available for office hours twice (2 x 1 hour per week: Mondays 12:00-1:00pm & Fridays 4:00-5:00pm) or by appointment in the MCB Learning Center in 101 Burrill Hall.

Course Description:

Introductory Microbiology (MCB 100) is designed to introduce students to the fascinating field of microbiology, where students will explore the invisible world of microbes, including bacteria, fungi, and parasites, and viruses. Students will learn about the properties and activities of microbes and why they matter to life on earth, including consideration of their important roles in natural processes, such as photosynthesis, ecology, nutrition, and health and disease. Students will gain foundational knowledge of microbial biology ranging from basic structural and cellular function and methods of experimental study to the use and control of microbes in industrial fermentations, in agriculture and biotechnology, in sanitation and environmental remediation, and in health promotion and disease prevention.

Introductory Microbiology (MCB 100) is a general education course offered by the Molecular and Cellular Biology instructional program that satisfies the General Education Criteria for Nat Sci & Tech – Life Sciences and serves non-MCB majors, such as Animal Science, Food Science, Pharmacy, Kinesiology, Engineering, etc.

Course Learning Objectives:

After taking this course, students will be able to:

1. Understand the components of scientific literacy and the process of scientific inquiry.
2. Communicate complex scientific information.
3. Apply simple predictive models to microbiology-related phenomena.
4. Understand how paradigms of microbiology relate to society and policy and their own lives.
5. Critically evaluate science-related news and information for their credibility and validity.
6. Apply critical thinking and reasoning skills to solve problems related to microbiology.
7. Possess a general working knowledge of fundamental biological concepts relevant to microbiology.
8. Recognize that microbiology is a dynamic, collaborative, and inter-disciplinary field.

COURSE TEXTBOOK, WEBSITE, AND MASTERING BIOLOGY MANAGEMENT TOOL

The textbook for this course is ***Microbiology: with Diseases by Taxonomy*** by Robert W. Bauman, 6th Edition, Pearson Education, Inc., 2020.

The eText comes with an on-line Modified Mastering Microbiology Course Management Tool, which should be accessed through the Moodle course website and purchased from the publisher: Pearson Education. Directions on how to access the website and setup a username and password can be found on the Moodle course website in Learn@illinois.edu under the "Announcements" tab. Hardcopy versions of the textbook are also available.

COURSE ASSESSMENTS

The course assessments are centered around the lecture material, which includes reading assignments, pre-lecture quizzes, lecture notes and discussion, in-class questions and activities, homework, team-based projects, and in-class examinations.

GRADING:

1,000 points total – 40 class periods

400 pts – 4 exams (100 pts each)

150 pts – In-class iClicker questions and/or activities (5 pts for each set, top 30 scores used)

150 pts – introductory tutorial & quiz, pre-lecture quizzes (10 pts for each, top 15 scores used)

100 pts – homework assignments (10 pts for each, top 10 scores used)

200 pts – 2x 4-member team poster/pamphlet projects (100 pts each), scores based on:

- 20 pts – Part A – 2-page executive summary – grade assessment from TA and instructor
- 20 pts – Part B – team-designed poster/pamphlet – grade assessment from TA and instructor
- 60 pts – Part C – peer-evaluation of executive summary and poster/brochure
 - 30 pts based on evaluations from other students
 - 30 pts based on evaluation of other teams' travel advisories (each student must evaluate other team's information material)

Grade Cutoffs: (out of 1,000 total points)

A	–	950
A-	–	900
B+	–	850
B	–	800
B-	–	750
C+	–	700
C	–	650
C-	–	600
D+	–	550
D	–	500
D-	–	450
F	–	<450

ACADEMIC INTEGRITY:

As UIUC students, everyone in this course is expected to be completely familiar with the *UIUC Student Code, Article 1. Part 4. Academic Integrity (sections 401-406)*. Cheating will NOT be tolerated in this course. Any student found cheating could face receiving a failing "F" grade for the course and recommendation for suspension or dismissal from the University.

MCB 100: Introductory Microbiology FALL 2019

#	Day	Date	Lecturer	Lecture Topic	Assigned Reading from Bauman, Microbiology, 6 th Ed, (Chapter: sections)	Assignments: Due dates & times
1	M	8/26	Wilson	Introduction: Course logistics What is microbiology? Scientific literacy	Ch 1: read for understanding	Register iClicker and Mastering Microbiology through Moodle website due by 9/3, 11:00pm
2	W	8/28	Wilson	History of microbiology Scientific inquiry and scientific method	Ch 1: read for more depth of understanding	Complete the Tutorial: Introduction to Mastering Microbiology and Introductory quiz due by 9/8, 11:00 pm Pre-lecture quiz #1 closes 9/8, 11:00 pm
3	F	8/30	Kieffer	Overview of microbes: Microscopy Cell structure and classification	Ch 3: read for understanding; Ch 4: read for understanding, with more depth for figures, tables 4.2, 4.3	Pre-lecture quiz #2 closes 9/8, 11:00 pm
	M	9/2	No Class	Labor Day		
4	W	9/4	Wilson	Cell growth and metabolism	Ch 5, Ch 6: read for understanding	Pre-lecture quiz #3 closes 9/8, 11:00 pm
5	F	9/6	Kieffer	Microbial ecosystems	Ch 27: sections 27.1-27.13	Pre-lecture quiz #4 closes 9/8, 11:00 pm
6	M	9/9	Kieffer	Microbiomes	Ch 27: sections 27.1-27.2, 27.13 Ch 14: sections 14.1-14.3	Homework #1 closes at 2:00 pm
7	W	9/11	Wilson	Environmental microbiology	Ch 26: sections 26.7-26.9; Ch 27: sections 27.3, 27.11-27.13	Pre-lecture quiz #5 closes at 11:59 pm
8	F	9/13	Wilson	Applied microbiology: Food Microbiology	Ch 26: sections 26.1-26.4	Homework #2 closes 9/16 at 11:59 pm
9	M	9/16	Wilson	Applied Microbiology: Industrial microbiology	Ch 26: sections 26.5-26.6 Ch 8: sections 8.1-8.3, 8.21-8.25	Pre-lecture quiz #6 closes at 11:59 pm
	W	9/18		Review Q & A – 2pm EXAM 1 – 7pm	Exam Location: 66 Library (last name begins with A – L) 103 Mumford Hall (last name begins with M – Z)	
10	F	9/20	Wilson	Prokaryotes: Bacteria - good	Ch 11	Pre-lecture quiz #7 closes at 2:00 pm
11	M	9/23	Wilson	Bacteria – bad (Gram-positive)	Ch 11	Team Selection due by 5:00 pm

12	W	9/25	Wilson	Bacteria – bad (Gram-negative)	Ch 11, Ch 19	Pre-lecture quiz #8 closes at 2:00 pm
13	F	9/27	Wilson	Bacteria – bad (other)	Ch 11, Ch 20	Homework #3 closes at 2:00 pm
14	M	9/30	Kieffer	Prokaryotes: Archaea	Ch 11, Ch 21	Team Project #1 Part A due by 5:00 pm
15	W	10/2	Wilson	Eukaryotes: Parasites	Ch 12, Ch 23	Pre-lecture quiz #9 closes at 2:00 pm
16	F	10/4	Wilson	Eukaryotes: Fungi - good	Ch 12, Ch 22	Pre-lecture quiz #10 closes at 2:00 pm
17	M	10/7	Wilson	Fungi - bad	Ch 12, Ch 22	Team Project #1 Part B due by 5:00 pm
18	W	10/9	Kieffer	Virus - bacteriophage	Ch 13	Pre-lecture quiz #11 closes at 2:00 pm
19	F	10/11	Kieffer	Virus - DNA	Ch 13, Ch 24	Team Project #1 Part C due by 5:00 pm
20	M	10/14	Kieffer	Virus - RNA	Ch 13, Ch 25	Homework #4 closes at 2:00 pm
	W	10/16		Review Q & A – 2pm EXAM 2 – 7pm	Exam Location: 103 Mumford Hall 66 Library	
21	F	10/18	Wilson	Infection & Disease Process – Infection Models & Virulence Factors NOTE: last day to drop a course without a “W”	Ch 14	Pre-lecture quiz #12 closes at 2:00 pm
22	M	10/21	Kieffer	Transmission & Epidemiology	Ch 14	Team Selection due by 5:00 pm
23	W	10/23	Kieffer	Innate Immunity – barriers	Ch 15	Pre-lecture quiz #13 closes at 2:00 pm
24	F	10/25	Kieffer	Innate Immunity – alarms and complement cascade	Ch 15	Homework #5 closes at 2:00 pm
25	M	10/28	Kieffer	Innate Immunity – humoral responses	Ch 15	Team Project #2 Part A due by 5:00 pm
26	W	10/30	Kieffer	Adaptive Immunity – mucosal responses	Ch 16	Pre-lecture quiz #14 closes at 2:00 pm
27	F	11/1	Kieffer	Adaptive Immunity – extracellular pathogens	Ch 16	Homework #6 closes at 2:00 pm
28	M	11/4	Kieffer	Adaptive Immunity – cellular responses	Ch 16	Team Project #2 Part B due by 5:00 pm
29	W	11/6	Kieffer	Adaptive Immunity - intracellular bacterial pathogens	Ch 16	Homework #7 closes at 2:00 pm
30	F	11/8	Kieffer	Adaptive Immunity – viral pathogens	Ch 16	Team Project #2 Part C due by 5:00 pm

31	M	11/11	Kieffer	Evading the Immune Response – pathogen evolution	Ch 14	Homework #8 closes at 2:00 pm
	W	11/13		Review Q & A – 2 pm EXAM 3 – 7pm	Exam Location: 150 Animal Sci Lab 1320 Digital Comp Lab 23 Psychology Bldg	
32	F	11/15	Wilson	Controlling microbes in the environment	Ch 9	Pre-lecture quiz #15 closes at 2:00 pm
33	M	11/18	Kieffer	Controlling microbes in the body - antimicrobials	Ch 10	Pre-lecture quiz #16 closes at 2:00 pm
34	W	11/20	Wilson	Antimicrobial resistance	Ch 10	Pre-lecture quiz #17 closes at 2:00 pm
35	F	11/22	Wilson	Challenge of finding new antimicrobials	Ch 10	Homework #9 closes at 2:00 pm
	M	11/25	No class	Fall Break		
	W	11/27	No class	Fall Break		
	F	11/29	No class	Fall Break		
36	M	12/2	Wilson	Alternative approaches to controlling microbes	Ch 9, Ch 10	Homework #10 closes at 2:00 pm
37	W	12/4	Wilson	Vaccines – what makes a good vaccine?	Ch 17, Ch 16	Pre-lecture quiz #18 closes at 2:00 pm
38	F	12/6	Wilson	Immunization programs	Ch 17	Homework #11 closes at 2:00 pm
39	M	12/9	Kieffer	Why vaccines fail		
40	W	12/11	Kieffer	Alternative approaches		Homework #12 closes at 2:00 pm
	M	12/16		FINAL EXAM – 8 am - 11 am	Exam Location: TBA	