

MCB 100 – Introductory Microbiology – SPRING 2026

Course Rubric: MCB 100 (3 credit hour, CRN#38678)

Course Meeting Time: Lectures for MCB 100 will be held MWF at 2:00-2:50 pm

Course Location: 2079 Natural History Building

Course Directors:

<p>Brenda A. Wilson, PhD Professor, Department of Microbiology URL: https://mcb.illinois.edu/directory/profile/wilson7 Office: B209 Chem Life Sci Lab (CLSL) Email: wilson7@illinois.edu Office Hours: Tuesdays, 12:00-12:50 pm, via Zoom or in-person by appointment - email to ask questions or to set up a meeting.</p>	<p>Collin Kieffer, PhD Assistant Professor, Department of Microbiology URL: https://mcb.illinois.edu/directory/profile/collink Office: 325 Burrill Hall Email: collink@illinois.edu Office Hours: Tuesdays, 12:00-12:50 pm, via Zoom or in-person by appointment - email to ask questions or to set up a meeting.</p>
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Course TA: Mr. Tanner Cress (tjcress2@illinois.edu) will be assisting with grading, course logistics, and helping to answer content questions. Mr. Cress will be available for in-person office hours on Mondays, Wednesdays, Thursdays and Fridays at 9:00-10:00 am in the MCB Learning Center (101 Burrill Hall) or via Zoom by appointment - email to ask questions or setup a Zoom session or meeting. Your TA will be the point person for handling all issues with Canvas, Mastering, iClickers, and grading.

Course Coordinator: Mr. Nick Kirchner (kirchner@illinois.edu) will be assisting with conflicts, DRES accommodations, conflict exam logistics, registration, proficiency exam, and other course logistics. Email to ask questions or to setup a Zoom meeting.

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. Students will attain a thorough working knowledge of foundational microbiological concepts, how to think critically and evaluate science-related news and information, and how to apply predictive models to microbiology-related phenomena.

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 many non-MCB majors, such as Animal Science, Food Science, Pharmacy, Kinesiology, Engineering, Community Health, Chemistry, Psychology, Integrative Biology, etc. Since MCB 100 fulfills the general education requirements for Life Sciences, students also gain a solid understanding of scientific literacy and the process of scientific inquiry, how to communicate complex scientific information, how to work collaboratively, and how paradigms of microbiology relate to society, policy, and their own lives.

Course Learning Objectives

After taking this course, students will be able to:

1. Describe the components of scientific literacy and the process of scientific inquiry.
2. Summarize and explain complex scientific information.
3. Apply simple predictive models to microbiology-related phenomena.
4. Demonstrate 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. Synthesize 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 MICROBIOLOGY 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 online Mastering Microbiology Course Management Tool, which is accessed through the Canvas course website and purchased there from the publisher: Pearson Education. (Note: Do not purchase the eText or Mastering Microbiology directly from the publisher – It needs to be synced with the Canvas course site, so only registering/purchasing through the course site will enable this.) NOTE: It is important that you use your UIUC netID account when registering. We are using Day1Access through the Illini Union Bookstore, which allows students to access the eTextbook and Mastering LMS at a significant discount price. If you do not want to purchase these materials through Day1Access, you can opt-out through the link in Canvas. If you opt-out, you must do so by September 8th, 2025, 11:59PM EDT. Directions on how to access the website (at URL: <https://learn.illinois.edu>) and setup a username and password can be found on the Canvas course website. Hardcopy versions of the textbook are also available for purchase through the bookstore, publisher or Amazon, but the eText is required for course reading assignments and homework.

READING ASSIGNMENTS AND STUDY AIDS

For each lecture topic, students are expected to prepare by reading the assigned chapters in the textbook and exploring the available study materials and tutorials available through the Mastering Microbiology site. You can use the “Study Area” in Mastering Microbiology to ensure you understand the material by practicing with additional questions posted for each of the reading assignments.

NOTE: There will be homework in Mastering Microbiology that is based on the assigned reading.

LECTURE PRESENTATION SLIDES AND VIDEO RECORDINGS

Lecture slide presentations and video pre-recordings will be made available for download from the Canvas site. The associated lecture discussion will be held during the normal class time on MWF at 2:00 pm. During this in-person class period, we will be reviewing key points regarding the material, practicing, and assessing student grasp of concepts through iClicker questions and activities, and students are welcome to ask questions regarding the lecture content and to discussion related topics with the instructors. **Students are expected to watch the pre-recorded lecture videos with the accompanying slides ahead of time to best prepare for the in-class discussion.** NOTE: These are particularly helpful if you miss a class.

COURSE ASSESSMENTS

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

Grading

1,000 points total – (39 lectures + 4 review sessions + 4 exam periods)

400 pts – 4 exams (100 pts each)

240 pts – 18 homeworks (15 pts each) – top 16 scores used

160 pts – 39 iClicker lecture sessions (5 pts each) – top 32 scores used

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

- 30 pts – Part A – executive summary – score assessment by TA/instructors
- 30 pts – Part B – team-designed poster – score assessment by TA/instructors
- 40 pts – Parts C, D, & E – peer-evaluation of executive summary and poster
 - 15 pts – Part C – score based on evaluations from other students (each student will be assigned 5 different team projects to assess)
 - 15 pts – Part D – score based on evaluation of other teams' travel advisories (fairness and justification of scores given in evaluating other team's projects)
 - 10 pts – Part E – score based on self-evaluation of team members and self

Grade Cutoffs: (out of 1,000 total points – these are absolute, no grade curving)

A+	–	990
A	–	930
A-	–	880
B+	–	830
B	–	780
B-	–	730
C+	–	680
C	–	630
C-	–	580
D+	–	530
D	–	480
D-	–	430
F	–	<430

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.

ASSIGNMENTS

Homework Assignments (Individual through Mastering Microbiology)

240 points – 15 pts each (18 Homework Assignments, top 16 scores used)

For the first Homework Assignment (HW#1), students will be exploring the Mastering Microbiology website using a Tutorial plus a few questions designed to help you learn how to navigate the system.

For the second Homework Assignment (HW#2), students will be completing an activity on the scientific method and scientific inquiry using the Canvas site (NOTE: not Mastering Microbiology).

For the remaining Homework Assignments (HW#3-#18), there will be an online quiz in Mastering Microbiology based on the assigned reading and tutorials and lecture notes (but primarily the reading assignment) for each of the topics covered in class, according to the course schedule. It is highly advised that you read the assigned text material and lecture notes before doing the homework. Once entering the homework quiz, the quiz will be open for 2 hours. Two attempts are allowed, with the average of the scores taken. NOTE: Be sure to plan your study to accommodate the length of time it will take to complete the quiz. Note: There may be a delay for syncing of the Mastering scores with the Canvas gradebook. After the quiz has closed, students who have completed the quiz will have access to the quiz for practice as well as a link to look up relevant sections of the eBook for study.

Team Project Assignments (as 4-membered team)

200 points total (100 points each) – upload through the Canvas site

For these team assignments, you will work as a 4-membered team to propose and design an informational development pitch with poster/flyer (Assignment #1) or a travel advisory with poster/flyer (Assignment #2). There will be 5 parts to this assignment. For the first two parts, you will work as a four-membered team to generate the executive summary (Part A) and poster (Part B). In the last three parts (Parts C, D, and E), you will participate as an individual in peer-evaluation of the team-generated projects. Specific details of these assignments and instructions are attached below and will be posted on the Canvas site.

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

- 30 pts – Part A – executive summary – grade assessment from TA/instructor
- 30 pts – Part B – team-designed poster – grade assessment from TA/instructor
- 40 pts – Parts C, D, & E – peer-evaluation of executive summary and poster/brochure
 - 15 pts – Part C – based on evaluations of your information material by other students
 - 15 pts – Part D – based on your evaluation of other teams' material (each student must evaluate other teams' information material for 5 different projects)
 - 10 pts – Part E – based on self-evaluation of your team and self

In-class iClicker Quizzes (Individual through iClicker Mobile App)

160 points – 5 pts each session (39 iClicker sessions, top 32 scores used)

This course is a general education course, where in-class participation is essential to receive the greatest learning experience outcome. There are 39 lectures. For each of the lectures, to enhance the student learning experience and to bolster student engagement, there are in-person iClicker questions that are part of the formative assessments and opportunities for students to engage in the discussion, as well as interact with the instructors and other students in the learning experience.

For each lecture, students are expected to use their iClicker mobile apps (register and download the app onto your mobile phone or laptop) to respond to at least 5 questions (at least 5 pts total per lecture) that will be posted in class. NOTE: We occasionally include 1-2 additional iClicker questions, for which students may receive extra credit for the iClicker component of their grades.

Directly enter the iClicker site for this course at URL: <https://join.iclicker.com/QUGB>. Be sure to note the Institution name as: UIUC School of Molecular & Cellular Biology. NOTE: It is important that you use your UIUC netID account when registering.

The questions will cover key concepts from the lecture material; hence students are expected to have reviewed the pre-recorded lecture videos, readings, and slides ahead of time to be best prepared for responding to the questions. For each question, 0.5 pt will be given for responding regardless of whether the response is correct and an additional 0.5 pt will be given for a correct response, i.e., even if your response is not correct, you will receive partial credit for responding. **You must be present in class to receive credit. If you have trouble with the app during lecture, write down your responses and give in-person to the TA or send them via email to the TA by the end of that class period (late submissions after 3:00pm are not accepted!).**

There are 7 built-in drops for iClickers. This means that if you miss class for any reason, you may use one of these drops. If you have absences due to military, athletic, or other scholarly events, please let us know the dates of your expected absences ahead of time. Note: You will be expected to use the 7 built-in iClicker drops for your absences (regardless of whether they are excused or not) before any other considerations are made. We will take this information into account at the end of term. NOTE: Missing more than 7 classes means that the student is missing out on well over 2-weeks' worth of class time, and we strongly feel that would fundamentally change the nature of the course and the students' learning experience, especially in terms of participation and engagement.

EXAMS

(400 points total – 100 pts each exam)

There will be 4 exams, 2 during the first half of the course and 2 during the second half of the course (the 4th exam will be held during the final exam period). For Exams 1-3 you will have 2 hours, for the Final (Exam 4) you will have 3 hours.

All of the exams are formatted the same: 32 multiple-choice questions = 30 questions for 3 pts each (= 90 pts) plus 2 questions for 5 pts each (= 10 pts). Bring your ID and #2 pencil to the exam to use for scantron. The questions will be similar to what you all have already seen during class with iClickers and in homework assignments. For each exam, the questions will emphasize material that was covered in the assigned readings (textbook and tutorials), assigned homework, in-class activities, and lecture notes (slides and videos). The Learning Objectives for each lecture are posted on the first slide of each lecture and are outlined in the posted Study Guides. The exams are not cumulative, emphasizing material covered during the previous, specified period. However, this does not mean that you can completely forget about the previous material from earlier in the course since later material builds on the earlier material.

EXAM Conflicts: If you have a conflict with an exam or an unexpected illness, you will need to fill out the CONFLICT REQUEST FORM (link is posted on the Canvas site) as soon as possible before the scheduled exam time. See the posted rules on the MCB website associated with requesting and obtaining approval for a conflict exam. Note: you cannot request a conflict exam for a time more than 12 hours before or more than 48 hours after the regularly scheduled exam time. If you have absences on exam dates due to military, athletic, or other scholarly events, please let us know the dates of your expected absences ahead of time, and we will try to accommodate as best we can within reason. Note: if you have an excused absence due to

an illness or acceptable scholastic activity and cannot meet the conflict window, we will consider a possible proration for 1 (and only 1 !) missed hourly exam. If you miss the final exam without any prior arrangement or communication before grades are issued, you will receive a score of 0 unless you receive approval for an incomplete (INC).

Challenging a Grade: To challenge a grade, you must submit a REGRADE REQUEST form through the Canvas site no later than 1 week after the exam scores are posted. Using the form format, you must specifically state which questions or components you want regraded and why. Except for simple score calculation errors, we will NOT regrade anything that does not have a written explanation/request with justification attached to it with the form. NOTE: All justifications must be based on the solid scientific evidence found in the lecture material, the Pearson textbook, or Mastering Microbiology – articles or websites found on the internet will not suffice. After one week, NO changes to grades will be made!

Honors Credit

Those of you who are in the Chancellor's Scholars, James Scholars, MCB Honors, or other honors programs (Note: students must be in one of these programs to be eligible for honors credit. Check with your advisor if you are not sure whether you are in an honors program.) and are interested in earning Honors Credit for MCB100, you may do so by completing the Honors assignment posted on the Canvas site by 11:59 pm on the last day of classes. Details of the assignment are posted on Canvas. Note: Honors credit is only given to students who earn at least a "B" grade in the course.

Extra Credit

We value your input regarding this course and would love to hear from you about your experience. To encourage feedback on our course so that we may improve it for future iterations, we offer 10 pts extra credit for providing evidence that the student has submitted FLEX evaluations for both instructors (5 pts for each instructor). Near the end of the semester, Campus will email students notifying them that the FLEX forms for courses are available and providing a link to the forms.

Instructions for receiving full credit: Please upload a .png, .jpg, or .pdf version of the webpage screenshot verification that you filled out the FLEX form. Do not include your responses to the FLEX questions. Once you have submitted your FLEX evaluations, take a screenshot of the webpage that shows you have completed your FLEX for the course and submit it to the Canvas course site during the open submission period. NOTE: It is important that you provide some form of evidence that the screenshot is from your phone or computer (e.g., include your name or picture in the screenshot as evidence). The last day for submitting your FLEX evidence for extra credit is 11:59pm on Ready Day.

DRES ACCOMMODATIONS

If you require special accommodations, please contact Disability Resources and Educational Services (DRES) as soon as possible at disability@illinois or call 217-333-4603.

Please email your current DRES letter to Mr. Nick Kirchner (kirchner@illinois.edu) – please copy both of your instructors on the email – within the first 10 days of classes.

We are committed to providing a learning environment where our students can succeed. We will try to meet your accommodation needs once the process has started. Note that accommodations are not retroactive to the beginning of the semester but begin the day you contact your instructors with a current letter of accommodation from DRES. If you miss any assignments or need extensions, please keep in mind that some of these are covered by drops built into the course (see grading policy). If you do need extensions or miss a deadline, please email the instructors, TA, Mr. Kirchner, and your teammates for Team-Assignments as soon as possible.

NOTE: since students have at least 1 week (often more) to complete each assignment, students should work closely with their DRES advisor or counselor to help meet those deadlines.

NOTE: students are obligated to communicate well in advance with their instructors, team members, and DRES advisor or counselor regarding any issues in meeting their assignment deadlines ahead of time. Failure to do so may result in late penalties being applied.

4-Membered Team Project Assignment #1 (100 pts)

Scenario: Your team is called in as microbiological expert consultants for a large, multimillion-dollar corporation that is interested in using microbes as bioreactors to produce certain biological products instead of synthetic compounds or as alternative biological applications to facilitate existing industrial processes. However, the board of trustees of this corporation is not convinced that this is an environmentally safe or beneficial approach. According to the chairperson of the board: "After all, microbes are associated with disease and have few beneficial applications that would make this a viable alternative." To convince the board of trustees that microbes could, indeed, have beneficial properties, the head of the corporation's development department has asked your team to provide examples of beneficial uses of microbes in industry, agriculture, environment, ecology, or medicine.

A list of potential microbes that could serve as suitable examples are:

(1) <i>Acetobacter aceti</i>	(2) <i>Acetobacter tropicalis</i>
(3) <i>Arthrobacter nicotianae</i>	(4) <i>Aspergillus flavus</i>
(5) <i>Aspergillus oryzae</i>	(6) <i>Azoarcus tolulyticus</i>
(7) <i>Azotobacter chroococcum</i>	(8) <i>Bacillus coagulans</i>
(9) <i>Bacillus thuringiensis</i>	(10) Baculovirus
(11) <i>Beauveria bassiana</i>	(12) <i>Bifidobacterium animalis</i>
(13) <i>Bifidobacterium longum</i>	(14) <i>Bradyrhizobium japonicum</i>
(15) <i>Brevibacterium linens</i>	(16) Brome mosaic virus
(17) <i>Ustilago maydis</i>	(18) <i>Caulobacter crescentus</i>
(19) <i>Cladosporium sphaerospermum</i>	(20) <i>Clostridium acetobutylicum</i>
(21) <i>Comamonas testosteroni</i>	(22) <i>Corynebacterium aquaticum</i>
(23) <i>Corynebacterium glutamicum</i>	(24) <i>Streptomyces cattleya</i>
(25) <i>Cupriavidus necator</i>	(26) <i>Curvularia protuberata</i>
(27) Cyanobacteria Chonkus	(28) <i>Erwinia dissolvens</i>
(29) <i>Gluconobacter oxydans</i>	(30) <i>Halomonas elongata</i>
(31) <i>Kineococcus radiotolerans</i>	(32) <i>Lactobacillus acetotolerans</i>
(33) <i>Lactobacillus acidophilus</i>	(34) <i>Lactobacillus bulgaricus</i>
(35) <i>Lactobacillus salivarius</i>	(36) <i>Bacillus licheniformis</i>
(37) <i>Lactobacillus reuteri</i>	(38) <i>Lactobacillus rhamnosus</i>
(39) <i>Leuconostoc citrovorum</i>	(40) <i>Leuconostoc mesenteroides</i>
(41) <i>Marinobacter algicola</i>	(42) <i>Methanosarcina barkeri</i>
(43) Microviridae	(44) <i>Monascus purpureus</i>
(45) <i>Mycococcus xanthus</i>	(46) Mycorrhizae
(47) <i>Nitrosomonas europaea</i>	(48) <i>Paucimonas lemoignei</i>
(49) <i>Pedicoccus cervisiae</i>	(50) <i>Penicillium camemberti</i>
(51) <i>Penicillium chrysogenum</i>	(52) <i>Penicillium glaucum</i>
(53) <i>Penicillium notatum</i>	(54) <i>Penicillium roqueforti</i>
(55) Polydnviridae	(56) <i>Pseudomonas aeruginosa</i>
(57) <i>Pseudomonas syringae</i>	(58) <i>Ralstonia pickettii</i>
(59) <i>Rhizobium leguminosarum</i>	(60) <i>Saccharomyces carlsbergensis</i>
(61) <i>Saccharomyces cerevisiae</i>	(62) <i>Spirulina</i>
(63) <i>Lactococcus lactis</i>	(64) <i>Streptococcus thermophilus</i>
(65) <i>Streptomyces</i> species	(66) <i>Synechococcus</i>
(67) <i>Thermus aquaticus</i>	(68) <i>Thiobacillus thiooxidans</i>
(69) <i>Trichoderma polysporum</i>	(70) <i>Trichonympha agilis</i>
(71) <i>Tuber melanosporum</i>	(72) Tulip breaking virus
(73) <i>Candida milleri</i>	(74) <i>Wangiella dermatitidis</i>

(75) <i>Wolbachia pipientis</i>	(76) <i>Xenorhabdus nematophilus</i>
(77) <i>Clostridium autoethanogenum</i>	(78) <i>Kluyveromyces marxianus</i>
(79) <i>Rhodospiridium toruloides</i>	(80) <i>Chloroflexus aurantiacus</i>

Task: Your team is asked to **prepare an executive summary report and development pitch (1000 ± 20 words) with visual aid (poster/flyer)** that you will submit to the corporation's leadership regarding the potential beneficial use of your assigned microbe. The goal is to present a pitch that convinces the corporation's CEO and board of trustees that your microbe has strong potential for new beneficial industrial, medical, agricultural, or environmental application(s), for which it is not already being used.

Team Selection – due by 11:59 pm on January 30

You are asked to **choose one of the microbes listed above** (first sign-up, first choice – your group number is the number of the microbe listed). NOTE: Your group number for Assignment #1 is not the same as the group number for Assignment #2.

Part A: (30 points) – due by 11:59 pm on February 18 – completed as a team

Before starting Part A, be sure to read the instructions for Assignment #1 and contact your team members to make arrangements to investigate the microbe that corresponds to your Team's number. Groups will have a maximum of 4 people and should be titled "Team Assignment #1 Group #" on signup and submission documents (full names of all contributing team members should be included).

To assist in preparing the executive summary report, you may use the Internet, scientific journal articles, and other information databases (such as PubMed), to research information about the microbe that you have chosen for your report. Be sure to cite your sources (journal article PMID, official website URL for government, scientific society, or organization, etc.) – but you may not cite a textbook, blog, personal website, or lecture-notes! Of these sources, at least 2 must be from journal articles and at least 1 must be from a government or industry source. Your citations and references may be listed on a separate page and do not count toward the word limit. For references provide a complete list of all author names (format: last name followed by first and middle initials – example: Name BA), article title, and journal/website citation (year, volume, edition, pages, PMID, URL, etc.). Format for the report is 1.5-line space, at least 11- or 12-point font, and ≥0.7-in margins.

Grading Rubric – For your report, your team should address the following points:

- (1) Identify the microbe or virus that you have chosen and describe what kind of microbe it is (bacterium, fungus, parasite, virus) and its phylogenetic classification (e.g., phylum, order, family, genus, species), where its normal niche/habitat is, and some of its key physical (morphology, size, shape) and metabolic properties. (8 pts)
 - How can we identify the microbe under a microscope? On an agar plate?
 - What environmental conditions does the microbe need to survive and grow?
- (2) Based on your research, describe briefly how this microbe can have a beneficial application. Provide a brief history of how this microbe has already been applied or used. Provide evidence that supports your suggestion on how it could be used for beneficial purposes. (10 pts)
 - How and when was the microbe discovered?
 - How do humans use the microbe currently?
 - How did it progress to its current use(s)?

- What expanded uses could the microbe potentially have?
- (3) Develop three questions or concerns (and your answers to them) that you anticipate the leadership in the corporation will ask you regarding possible applications of this microbe based on the information you give them. Provide the rationale behind each of your questions and answers. (12 pts)
- These questions should be microbe specific.
 - Do not ask general or basic questions like “Is it safe to use?” – be more detail oriented (remember this is a multimillion-dollar corporation with highly savvy executives that care about what their funds will be used for development).
 - Be specific and play to the microbe’s strengths or limitations.

This is a narrative report! It is critical that you submit a document that is fully integrated that is completed by all members of the team. It is important the team provides a comprehensive, yet coherent and nonredundant narrative with each of the points above merged into a smooth and understandable document. Do not repeat each of the points above in your narrative but rather provide a clear, smooth narrative that tells a compelling story. It should be obvious that you all worked together as a team to prepare the document.

Deductions:

- - 4 pts for lack of cohesive writing or presentation, unnecessary repetitiveness (suggesting poor integration), poor rigor in accuracy, or inadequately addressing the content points that should be included.
 - Make the summary sound like one person wrote it.
 - Use accurate and reliable sources (not AI-generated overviews that often misinterpret scientific literature)
- -3 pts for poorly organized references, too few relevant references that support the summary statements or proposed arguments, or inappropriate references that do not support the conclusions or arguments
 - Use a minimum of 7 primary sources, which are primary literature articles from peer-reviewed scientific journals (Note: Article summaries from Science Direct do no count).
 - Use in-text citations (numbers are fine) and include a reference list (can be on a separate page that does not go into the word count limit).
- -3 pts for inadequate scientific writing or language format, poor punctuation, spelling or grammar.
 - Use appropriate, adequate scientific language (not jargon or slang). Note: AI often does not use scientific language to the degree that we require, so be mindful of this.
- -1 pt for every 20 words over or under the word limit range (1000±20 words for the main text body)

NOTE: Submit your report as a **pdf file** to the Canvas website – use the file extension *.pdf and include your team’s number in the title (example: 1-PartA-Team#1.pdf). Please do not submit as a Google doc link. Only one person from the group needs to submit (make sure all the full names of team members who contributed is on the report), but ALL members of the group must click the submit button before the assignment will be considered submitted. Do NOT wait until the evening it is due to put everything together and submit – not everyone on your team may be available late in the evening – plan ahead! Make sure that you have submitted the correct document!

NOTE: Do NOT wait until the last few days before the deadline to attempt to contact your teammates and complete the assignments. If you are having trouble contacting your teammates, please let us know asap, and we will try to help. BUT it is your responsibility to make arrangements with your team well in advance and to contribute to the work effort. Teamwork is an important component of this assignment. Failure to interact with your team members in an amicable way will impact your scores. If we are contacted with

insufficient time, we cannot help, which may lead to lower scores.

Part B: (30 points) – due by 11:59 pm on February 27 – completed as a team

Your team is asked to compile the information gathered in Part A to design an informational poster or infographic that the corporation's leadership could have as a handy quick-facts sheet for review and that could be used during a formal pitch to the leadership. That is, Part B is a visual prompt for the overall pitch. For example, you may choose to use powerpoint (in poster mode).

NOTE: Part B should not be more than 1 single visual picture/image. This should not be a multipage slide deck! Powerpoint has a poster-making feature, where you can make a poster as a single slide. It must fit on an 8" x 11" page and be legible! See: <https://designshack.net/articles/business-articles/how-to-make-a-poster-in-powerpoint/>. A popular way that many folks present their ideas to higher ups in companies or to funding agencies is to present them in the form of a **quad chart** (URL: <https://slidehunter.com/topics/quad/>). Alternatively, Canva is available at URL: <https://www.canva.com/create/infographics/> and Piktochart at URL: <https://piktochart.com>. Note: If you use images that are not yours, be sure to cite your sources. You may cite with a number and then list them on a separate page.

Grading Rubric:

- 10 pts for completeness and quality of content information and reference sources that align well with the executive summary content (Part A).
- 10 pts for creativity, quality, and effort toward visual appearance.
- 10 pts for effectiveness to inform and educate the public and corporation leadership about the beneficial uses or applications of your microbe.

NOTE: Submit your material as a pdf file to the website – use the file extension *.pdf and include your team's number in the title (example: 1-PartB-Team#1.pdf). If you do not know how to generate a pdf file of your image from whatever media you are using, seek assistance from your TA during office hours or arrange via email to meet with them.

Note: Teamwork is an important component of this assignment! If you are having trouble with any team member(s), please let us know and we will try to help. BUT it is your responsibility to make arrangements with your team well in advance and to contribute to the work effort.

Parts C, D, and E: (40 points) – each person submits individually

– combine and submit revised Parts A and B to Part C by 11:59 pm on March 6

As a team, revise the Part A and Part B documents based on feedback from the TA, then combine the two pdf documents into one document. Each team member will then submit the combined document to Part C (this part is done individually by each person). Submit your material as a single pdf file to the website – use the file extension *.pdf and include your team's number in the title (example: 1-PartC-Team#1.pdf). You will not be assigned other projects to assess until you have submitted to Part C.

NOTE: MAKE SURE YOU SUBMIT BOTH PARTS A AND B TO PART C as a single pdf. Be sure to include full names of all contributing team members and your group number on the documents. Double-check your submission to make sure that you have submitted the correct documents.

– complete assessment Parts C, D, and E by 11:59 pm by 11:59 pm on March 30

Part C (15 points): Once the team's final, revised combined Part A and Part B documents have been submitted to Part C, each student will then participate in peer-evaluating the executive summaries plus visuals (combined Parts A and B) that were submitted by 5 other teams assigned to the student. That is, you will evaluate the summaries and posters or infographics of 5 other different teams. A scoring rubric will be provided

on Canvas (be sure to click the “show rubric” button in the upper righthand corner of the screen). Note: There is step-by-step instruction sheet posted to help you with this process.

To ensure fair assessment, each student will evaluate a minimum of 5 other team projects. Note: You will be assigned 6 projects, but you only need to complete 5 so long as there are no duplicates. If the program assigns you duplicate projects that are from students that are on the same team, please let the TA know ASAP, so that you can be assigned another different project to review. For Part C, all members of your team will receive a team score based on the scores of reviewers for your team’s project. Each member of your team will receive the same score for this part.

A tutorial on how to submit a peer review in Canvas can be found at URL:

<https://community.canvaslms.com/t5/Student-Guide/How-do-I-submit-a-peer-review-to-an-assignment/ta-p/293>.

NOTE: It is important that you provide a 1-2 sentence justification for each of your scores (place this justification after each score where it has a box for comments, not just as a summary at the bottom of the rubric panel). This will be especially important should any of your scores differ significantly from that of your peers and/or the TA.

Grading Rubric: You will receive up to 3 pts for each of the 5 projects that you review (total = 15 pts).

Deductions:

- -2 pts per project review for not providing justification statement for each criterion for that project.
- -1 pt per project review for not providing an overall assessment statement for that project.

Part D (15 points): For Part D, you will receive an individual score by the TA based on the completeness and fairness of the scores you gave each of your 5 assigned projects (up to 3 pts for each review completed). You do not need to submit anything here. The TA will do this assessment so long as you submit your assessments for Part C. NOTE: If your assessment scores for other projects deviate by more than 2 points from that of the TA’s assessment scores and/or from the average of the other reviewers’ scores without valid justification, then your score for this part could be impacted. This is why it is important for you to provide comments that justify each of the scores that you give on the Part C peer-assessment of your assigned projects. Without this justification, the TA cannot ascertain the fairness of your assessments and so your score could be impacted.

Deductions:

- -3 pts if your score does not agree with that of your peers or the TA’s score and you do not have a good justification for each criteria score (see the tutorial above for how to do this correctly – or ask the TA at office hours).
- -2 pts if your score does agree well with that of your peers but does not agree with the TA’s score and you do not have a good justification for your score.
- -1 pt if your score does not agree well with that of your peers but does agree with the TA’s score and you do not have a good justification for your score.

Part E (10 points): You will also be asked to self-evaluate your own performance and that of your teammates regarding contributions and efforts for the team project.

NOTE: If you feel that not all of your team members contributed equally to this assignment (part A or part B or both), then it is your responsibility to contact your instructors to explain the situation at the time that the problem is occurring, and we will try to help sort the matter (do this sooner rather than later). Remember, teamwork is an important learning objective of this assignment. Be sure to list the names of each of your team members in addition to the Team Number.

To give you an opportunity to voice your opinion, you will also submit a self-assessment of each member of

your team (including you) regarding: (1) % participation or effort of each person, and (2) score of 1-5 for quality of each person's contribution. We ask that your assessment be as honest and fair as possible. If there is a significant issue, then we will investigate the matter further (preferably, your team will have communicated any issues with us well before the documents were submitted). If all members of your team agree that you did not participate equally, your score could be impacted.

Grading Rubric: You will self each member of the team based on each of the following:

- 4** = Excellent – Very strong work, contributed significantly to the team
- 3** = Good – Sufficient effort, contributed adequately to the team
- 2** = Fair – Insufficient effort, met minimal standards of teamwork
- 1** = Poor – Little or weak effort, was detrimental to the team

4-Membered Team Project Assignment #2 (100 pts)

Scenario: Your team is called in as infectious disease expert consultants for a large, multi-million-dollar corporation that sends representatives to all parts of the world to gather information and statistics about potential markets. You have been assigned the responsibility of updating the corporation's leadership on what should be done for its representatives who will be sent to these regions to protect them from potential health hazards. The CDC regularly posts notices to inform travelers and clinicians about current health situations related to specific destinations. These issues may arise from disease outbreaks that may affect travelers' health. The CDC has issued previous or current Alerts for the following infectious diseases:

(1) African tick-bite fever	(2) African trypanosomiasis (African sleeping sickness)
(3) Anthrax	(4) Aspergillosis
(5) Avian flu	(6) Bovine spongiform encephalopathy
(7) Brucellosis	(8) Bubonic Plague
(9) Buruli ulcer disease	(10) Chagas disease
(11) Chikungunya	(12) Ehrlichiosis
(13) Cholera	(14) <i>Clostridioides difficile</i>
(15) Dengue	(16) Diphtheria
(17) <i>Diplyidium</i>	(18) <i>E. coli</i> O157:H7
(19) Ebola	(20) Giardiasis
(21) Gonorrhea	(22) H7N9 Avian Flu
(23) Hand, foot and mouth disease	(24) Hantavirus pulmonary syndrome
(25) Hepatitis A	(26) Hepatitis B
(27) Hepatitis C	(28) Hepatitis E
(29) Histoplasmosis	(30) HIV
(31) Leishmaniasis	(32) Leptospirosis
(33) Lyme disease	(34) Malaria
(35) Measles (Note: not Rubella)	(36) Meningococcal disease
(37) Middle East respiratory syndrome (MERS)	(38) Methicillin-resistant <i>Staphylococcus aureus</i>
(39) Monkeypox	(40) Mumps
(41) Pasteurellosis	(42) Pertussis (whooping cough)
(43) Polio	(44) Rabies
(45) Rat-bite fever	(46) Rocky Mountain spotted fever
(47) Ross River virus disease	(48) Scabies
(49) Schistosomiasis	(50) Tetanus
(51) Tick-borne encephalitis	(52) Tinea
(53) Toxocariasis	(54) Trichomoniasis
(55) Tuberculosis	(56) Tularemia
(57) Typhoid fever	(58) <i>Vibrio vulnificus</i>
(59) West Nile virus	(60) Elephantiasis tropic (lymphatic filariasis)
(61) Yellow Fever	(62) Zika
(63) Salmonellosis	(64) Lassa hemorrhagic fever
(65) <i>Chlamydia trachomatis</i>	(66) Cryptosporidiosis
(67) <i>Pseudomonas aeruginosa</i>	(68) Q fever
(69) Glanders	(70) Cat scratch disease
(71) Streptobacillosis	(72) Listeriosis
(73) Kuru disease	(74) Marburg virus
(75) Babesiosis	(76) Creutzfeldt-Jakob disease
(77) Whipple's disease	(78) <i>Pseudallescheria boydii</i>

Task: Your team is asked to **prepare an executive summary report (1000 ± 20 words) with visual aid (poster/flyer)** that you will submit to the corporation's leadership regarding the risk employees traveling to a certain region with your microbe present. The goal is to present an informational notice that will inform the corporation's employees who might be traveling to that region where there is an infection risk to their health about what the risks are, details about the microbe, precautions to take for prevention, and treatment options if exposed.

Team Selection – due by 11:59 pm on March 23

You are asked to **choose one of the microbes listed above** (first sign-up, first choice – your group number is the number of the microbe listed). NOTE: Your group number for Assignment #2 is not the same as the group number for Assignment #1.

Part A: (30 points) – due by 11:59 pm on April 3 – completed as a team

Before starting Part A, be sure to read the instructions for Assignment #2 and contact your team members to make arrangements to investigate the microbe that corresponds to your Team's number. Groups will have a maximum of 4 people and should be titled "Team Assignment #2 Group #" on signup and submission documents (full names of all contributing team members should be included).

To assist in preparing the report, you may use the Internet to research current healthcare industry data on current trends, treatments, and protocols for the travel alert you have chosen for your report, as well as scientific journal articles (but not a textbook, blog, personal website, or lecture notes!). Be sure to cite your sources (journal article PMID, website URL, etc.)! Of these sources, at least 2 must be from primary literature journal articles and at least 1 must be from a government source. Be sure to make an in-text citation (using a number is fine) and list the sources on a separate page – these will not count toward the word count limit. For references provide a complete list of all author names (format: last name followed by first and middle initials – example: Name BA), article title, and journal/website citation (year, volume, edition, pages, PMID, URL, etc.). Format for the report is 1.5-line space, at least 11- or 12-point font, and ≥0.7-in margins.

Grading Rubric – For your report address the following points:

- (1) Identify the microbe or virus responsible for the disease, how it causes disease, its mode of transmission, and symptoms of the disease. (8 points)
 - How does the microbe make someone ill?
 - How is the microbe transmitted?
 - How can you identify the disease - what are the symptoms and signs? What does the microbe look like under a microscope? On an agar plate?
- (2) Based on your research, describe briefly how individuals from the corporation who are traveling to those regions can protect themselves. Provide any preventive measures and/or treatments that are currently available and their recommended use. Be sure to consider any lessons that have been learned from past outbreaks of that disease or similar disease (state which one) that will underscore the importance of preparing for any upcoming trip that a member of the corporation may take to that region and why these lessons will be beneficial in keeping the traveler safe. (10 pts)
 - Where and under what conditions do these precautions need to be taken?
 - How do you stay healthy?
 - What do you do if you get ill (suspect you have been infected with this microbe)?
 - When and where was the recent disease outbreak and past ones?

- How did prior experiences shape our current approach to handling this disease?
- (3) Develop three questions or concerns (and your answers to them) that you anticipate that the leadership in the corporation will ask you in regard to possible side effects or problems associated with taking the available precaution measure or exposure treatments for the diseases. Provide the rationale behind each of your questions. (12 pts)
- These questions should be microbe specific.
 - Do not ask general or basic questions like “How do I avoid getting sick?” – be more detail oriented (remember this is a multimillion-dollar corporation with highly savvy executives that care about what their funds will be used for development).
 - Is there a current treatment? Is it effective?

This is a narrative report! It is critical that you submit a document that is fully integrated and completed by all members of the team. It is important the team provides a comprehensive, yet coherent, and nonredundant narrative of each of the points above. Do not repeat each of the points above in your narrative but rather provide a clear, smooth narrative that tells a compelling story.

Deductions:

- - 4 pts for lack of cohesive writing or presentation, unnecessary repetitiveness (suggesting poor integration), poor rigor in accuracy, or inadequately addressing the content points that should be included.
 - Make the summary sound like one person wrote it.
 - This is not a list.
 - Use accurate and reliable sources (not AI-generated overviews that often misinterpret scientific literature)
- -3 pts for poorly organized references, too few relevant references that support the summary statements or proposed arguments, or inappropriate references that do not support the conclusions or arguments
 - Use a minimum of 7 primary sources, which are primary literature articles from peer-reviewed scientific journals (Note: Article summaries from Science Direct do not count).
 - Use in-text citations (numbers are fine) and include a reference list (can be on a separate page that does not go into the word count limit). You should not cite only the Center for Disease Control and Prevention (CDC), the World Health Organization (WHO), or other government or hospital websites.
- -3 pts for inadequate scientific writing or language format, poor punctuation, spelling or grammar.
 - Use appropriate, adequate scientific language (not jargon or slang). Note: AI often does not use scientific language to the degree that we require, so be mindful of this.
- -1 pt for every 20 words over or under the word limit range (1000±20 words for the main text body)

NOTE: Submit your report as a **pdf file** to the Canvas website – use the file extension *.pdf and include your team’s number in the title (example: 2-PartA-Team#1.pdf). Please do not submit as a Google doc link. Only one person from the group needs to submit (make sure all the full names of team members who contributed is on the report), but ALL members of the group must click the submit button before the assignment will be considered submitted. Do NOT wait until the evening it is due to put everything together and submit – not everyone on your team may be available late in the evening. Make sure that you have submitted the correct document!

NOTE: Do NOT wait until the last few days before the deadline to attempt to contact your teammates and complete the assignments. If you are having trouble contacting your teammates, please let us know asap,

and we will try to help. BUT it is your responsibility to make arrangements with your team well in advance and to contribute to the work effort. Teamwork is an important component of this assignment. Failure to interact with your team members in an amicable way will impact your scores. If we are contacted with insufficient time, we cannot help, which may lead to lower scores.

Part B: (30 points) – due by 11:59 pm on April 10 – completed as a team

Your team is asked to compile the information gathered in Part A to design a travel advisory poster or infographic that could be used to caution travelers to the region where the travel advisory is in effect. While Part A provides a summary of the concerns that is important for the corporation's leadership in making informed decisions regarding sending employee's to the region of concern, Part B is an informational poster that the employees will use to appropriately prepare themselves for travel to the region and know what to do in the event that they are exposed.

NOTE: Part B should not be more than 1 single visual picture/image. This should not be a multipage slide deck! It must fit on an 8" x 11" page and be legible! Powerpoint has a poster-making feature where you can make a poster in it as a single slide. See: <https://designshack.net/articles/business-articles/how-to-make-a-poster-in-powerpoint/>. Piktochart is available at URL: <https://piktochart.com>, Canva is available at URL: <https://www.canva.com/create/infographics/>, or you may present the poster in the form of a **quad chart**, c.f. at URL: <https://slidehunter.com/topics/quad/>. If you use images that are not yours, be sure to cite your sources. You may list them on a separate page.

Grading Rubric:

- 10 pts for completeness and quality of content information and reference sources that align well with the executive summary content (Part A).
- 10 pts for creativity, quality, and effort toward visual appearance.
- 10 pts for effectiveness to inform and educate the public and corporation leadership about the beneficial uses or applications of your microbe.

NOTE: Submit your material as a pdf file to the website – use the file extension *.pdf and include your team's number in the title (example: 2-PartB-Team#1.pdf). If you do not know how to generate a pdf file of your image from whatever media you are using, seek assistance from your TA during office hours or arrange via email to meet with them.

Note: Teamwork is an important component of this assignment! If you are having trouble with any team member(s), please let us know and we will try to help. BUT it is your responsibility to make arrangements with your team well in advance and to contribute to the work effort.

Parts C, D, and E: (40 points total) – each person completes individually

– combine and submit revised Parts A and B to Part C by 11:59 pm on April 20

As a team, revise the Part A and Part B documents based on feedback from the TA, then combine the two pdf documents into one document. Each team member will then submit the combined document to Part C (this part is done individually by each person). Submit your material as a single pdf file to the website – use the file extension *.pdf and include your team's number in the title (example: 2-PartC-Team#1.pdf). You will not be assigned other projects to assess until you have submitted to Part C.

NOTE: MAKE SURE YOU SUBMIT BOTH PARTS A AND B TO PART C as a single pdf. Double-check your submission to make sure that you have submitted the correct documents.

– complete assessment Parts C, D, and E by 11:59 pm on May 1

Part C (15 points): Once the team's final, revised combined Part A and Part B documents have been submitted

to Part C, each student will then participate in peer-evaluating the executive summaries plus visuals (combined Parts A and B) that were submitted by 5 other teams assigned to the student. That is, you will evaluate the summaries and posters or infographs of 5 other different teams. A scoring rubric will be provided on Canvas (be sure to click the “show rubric” button in the upper righthand corner of the screen). Note: There is step-by-step instruction sheet posted to help you with this process.

To ensure fair assessment, each student will evaluate a minimum of 5 other team projects. If the program assigns you duplicate projects that are from students that are on the same team, please let us know ASAP, so that we can assign another different project for you to review. For Part C, all members of your team will receive a team score based on the scores of reviewers for your team’s project. Each member of your team will receive the same score for this part.

A tutorial on how to submit a peer review in Canvas can be found at URL:

<https://community.canvaslms.com/t5/Student-Guide/How-do-I-submit-a-peer-review-to-an-assignment/ta-p/293>.

NOTE: It is important that you provide a 1-2 sentence justification for each of your scores (place this justification after each score where it has a box for comments, not just as a summary at the bottom of the rubric panel). This will be especially important should any of your scores differ significantly from that of your peers and/or the TA.

Grading Rubric: You will receive up to 3 pts for each of the 5 projects that you review (total = 15 pts).

Deductions:

- -2 pts per project review for not providing justification statement for each criterion for that project.
- -1 pt per project review for not providing an overall assessment statement for that project.

Part D (15 points): For Part D, you will receive an individual score by the TA based on the completeness and fairness of the scores you gave each of your 5 assigned projects. NOTE: If your assessment scores for other projects deviate by more than 2 points from that of the TA’s assessment scores and/or from the average of the other reviewers’ scores without valid justification, then your score for this part could be impacted. This is why it is important for you to provide comments that justify each of the scores that you give on the Part C peer-assessment of your assigned projects. Without this justification, the TA cannot ascertain the fairness of your assessments and so your score could be impacted.

Grading Rubric: You will receive up to 3 pts for each of the 5 projects that you review (total = 15 pts).

Deductions:

- -3 pts if your score does not agree with that of your peers or the TA’s score and you do not have a good justification for each criteria score (see the tutorial above for how to do this correctly – or ask the TA at office hours).
- -2 pts if your score does agree well with that of your peers but does not agree with the TA’s score and you do not have a good justification for your score.
- -1 pt if your score does not agree well with that of your peers but does agree with the TA’s score and you do not have a good justification for your score.

Part E (10 points): You will also be asked to self-evaluate your own performance and that of your teammates regarding contributions and efforts for the team project.

NOTE: If you feel that not all of your team members contributed equally to this assignment (part A or part B or both), then it is your responsibility to contact your instructors to explain the situation at the time that the problem is occurring, and we will try to help sort the matter (do this sooner rather than later). Remember, teamwork is an important learning objective of this assignment. Be sure to list the names of each of your

team members in addition to the Team Number.

To give you an opportunity to voice your opinion, you will also submit a self-assessment of each member of your team (including you) regarding: (1) % participation or effort of each person, and (2) score of 1-5 for quality of each person's contribution. We ask that your assessment be as honest and fair as possible. If there is a significant issue, then we will investigate the matter further (preferably, your team will have communicated any issues with us well before the documents were submitted). If all members of your team agree that you did not participate equally, your score could be impacted.

Grading Rubric: You will self each member of the team based on each of the following:

- 4** = Excellent – Very strong work, contributed significantly to the team
- 3** = Good – Sufficient effort, contributed adequately to the team
- 2** = Fair – Insufficient effort, met minimal standards of teamwork
- 1** = Poor – Little or weak effort, was detrimental to the team

TASKS-AT-GLANCE

Here is what to do for each lecture:

1. Read the assigned chapter in the eTextbook in Mastering Microbiology (posted in the course Schedule and on the Mastering Microbiology calendar).
2. Before each lecture listen to the pre-recorded lecture video in Canvas. Most students find that using 1.5x audio speed works well. There is also an accompanying pdf of the lecture slides also available in Canvas.
3. Attend all lecture discussion sessions (MWF at 2:00-2:50 pm). There will be in-class iClicker questions (worth up to 5 pts) for each session to provide feedback on learning progress. Bring questions to the session for discussion.
4. Complete the practice lecture-specific activity to help learn the material under the Study Area in Mastering Microbiology. We recommend that you complete this before completing the homework assignment to keep up with the material and to aid with preparing for the homework and exam.
5. Complete the associated Homework Assignment – due as listed in the course schedule (posted on Canvas) and in the Mastering Microbiology calendar.

NOTE: There will also be 2 team-based projects to complete before the end of the semester.

1. DO NOT WAIT until the last day to contact your team members and organize the tasks.
2. Please follow the course schedule for due dates for each part of the assignments.
3. These projects provide application of the concepts learned in the course and provide a general overview of different types of microbes.
4. Teamwork is a critical component of these assignments that help build science communication skills and collaborative experience.

Tips for success:

You will do well in this course if you keep up to date with the material! This means that you will need to spend time studying every day! The key to successful learning is multiple fully engaged exposures to the material. Participating in study groups or class forums is also helpful.

Take good notes during class lecture and review them later. Use the “study area” in Mastering Microbiology to ensure you understand the material by practicing with additional questions for each chapter. Review iClicker and Study questions.

Read and study the assigned material before the lecture. This makes the learning process much more efficient, and it also helps with getting the most out of discussions.

The later parts of the course will require that you understand and remember material learned in earlier parts of the course, even though the emphasis will be on the newer material.

You will NOT success in this course by memorization alone. To do well in this course, you must participate in active study and research individually and in a group, and you will have to understand concepts, integrate facts and concepts, make extrapolations, and apply them to situations.

If you are having difficulty with this course, DO NOT WAIT to seek out help. Make use of available resources! And that includes us! Both instructors will be available for discussions during class, immediately after class, and during office hours, where any question will be answered or any topic that is not clear will be discussed. You can also get help from your TA during office hours.