

MCB 3020: General Microbiology

Spring 2018 Course Syllabus

Instructor: Dr. Laura Serbus
Class hours: Monday, Wednesday, Friday 10-10:50AM
Class location: CP151
Office Hours: Mon, Wed, Fri 11-12:30. **Also, Mon, Wed 1:30-2:30 as per in-class vote.**
Office location: AHC1 219B
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Course Webpage: see Blackboard

Syllabus is subject to change

A. What will I get out of taking this course?

This course will guide you in acquiring a broad foundation in Microbiology and in applying your knowledge. By practicing critical thinking skills in practical scenarios, this course will also prepare you to independently assess biomedical information provided by health practitioners and mass media.

B. What prior training do I need to succeed in this course?

The prerequisites for this course are completing and passing Gen Bio 1 and 2 (BSC 1010, BSC 1011) and Organic Chem 1 and 2 (CHM 2210, CHM 2211). No other science courses are needed.

C. What text resources should I consult?

Recommended for the course: Microbiology, an Evolving Science 4th ed, Slonczewski + Foster
ISBN: 0393123685 or 978-0393123685

Supplemental text (not required): Brock Biology of Microorganisms, 15th ed, Madigan et al.
ISBN: 0134261925 or 978-0134261928

D. How is this course organized?

The course material will be presented in multiple formats. Materials will be uploaded on Blackboard for student review before and after class. However, studying annotated notes from the website is not enough to get a good grade in the course. To maximize your success, you should plan to attend class regularly, participate in the in-class exercises, and take notes in your own words.

To record your in-class participation, please register your iClicker through Blackboard during the first week of class. For accuracy, plan to use an iClicker remote. This course allows but is not responsible for the Reef Polling app. Reef Polling answers are not always recorded correctly, and I cannot retroactively fix those. Please verify that your clicker scores are visible to you in Blackboard.

There will be a minimum of 3 clicker questions per class. Though some questions are to be answered individually, most questions allow for consulting with colleagues prior to entering your answer. Correct answers count for 1 point each, and incorrect answers will be scored as 0.5 points each, with a maximum accrual of 3 points per class. If we have an online assignment, the questions to be answered through Blackboard will substitute for Clicker questions, also capped at 3 points. Clicker scores for the best 28/32 recorded clicker response days will count toward your final grade.

A portion of the grade is based upon posts to the Discussion boards in Blackboard. Earning all 4% requires making one thoughtful Discussion post prior to each of the 4 class exams (1% each). An easy way to earn this credit is to ask a question about the material or answer questions posted by others. Other ways are to post links to interesting research papers, a new biomedical report from a major agency (i.e. CDC or WHO), and/or by a major network news organization that is relevant to topics of our class. Also possible: post web links to appropriate animations of relevant molecular processes. (If the movie is cool but not mechanistically correct, explain why, etc.) This works best when students discuss content in the form of conversations and posts generally avoid redundancy.

The course has three midterm exams and a final. These will all be in the format of multiple choice and true-false questions. The best 2 out of 3 midterm exams will count toward the final grade. The final exam is mandatory. The format of exams will be responsive to class voting preferences. Given the size of our class, there are no makeup exams or late submissions of exams. Missing a single midterm exam due to an emergency will not hurt your grade, but please be aware that missing 2 or more earns an automatic grade of "F" in the course. The goal of this course is to promote student growth into independent and empowered thinkers. As cheating is counterproductive to that effort, anyone submitting fraudulent exams will be referred to the Dean of Undergraduate Education as outlined under "Academic Misconduct" in the Policies and Regulations section of the FIU Student Handbook.

E. What is the grading scale for this course?

Our standard scale is this:

A	100% - 93%
A-	92% - 89%
B+	88% - 87%
B	86% - 83%
B-	82% - 79%
C+	78% - 77%
C	76% - 70%
D	69% - 60%
F	below 59%

If the class does well overall, the final grades for the class will be determined by the scale above. If the final grades indicate that it is appropriate to do so, an alternate grading curve may be developed.

Each part of the course assessment contributes to the final grade, in the proportions shown here:

Two out of three best midterms	23%	+23% = 46%
Final exam	22%	
iClicker credit	28%	
Discussion posts	4%	
Total:	100%	(All scores will be posted in Blackboard.)

F. Is there any extra credit in this course?

Participation in an in-class demonstration earns 1% extra credit toward your overall course grade. Students are also permitted to bring a hand-written index 4x6 index card to class with notes on it relevant to the exam material—submission of this note card along with the exam earns 1 extra credit point on the exam.

G. What should I do if I need special accommodation?

The Disability Resource Center collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive and sustainable. The DRC provides FIU students with disabilities the necessary support to successfully complete their education and participate in activities available to all students. Students that have a diagnosed disability and plan to utilize academic accommodations are asked to please contact the Center at 305-348-3532 or visit the DRC, located at the Graham Center GC 190.

H. What are the classroom norms for this course?

In our class, students play a central part in creating a positive, productive, and focused environment in the classroom by adhering to a respectful standard of conduct. Following common-sense guidelines maximizes the overall student experience, protects student privacy, and minimizes student distraction from the tasks at hand.

Yes	No
Audio recording ok	Photography
Bringing laptop for typing notes ok	Video recording
Slides will be available to you thru Blackboard	Web surfing/emailing/social media
Working together on clicker questions	Posting our class material to the internet
In-class demos of functional concepts	Peanut products in class (please)
Collegial communication at all times	Disrespectful/disruptive behavior

Microbiology is a supportive environment. We will try to take a break halfway through each class for students to use the restroom, check messages and/or take any urgent phone calls. If you have a known chronic condition that occasionally requires emergency attention (i.e. epi pen, etc), please notify me and the students seated near you in class so that we can support you if needed.

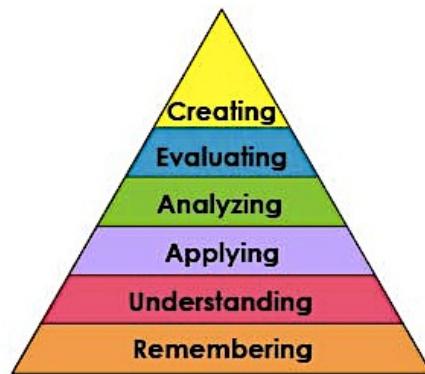
The same level of professionalism and respect applied in the Microbiology classroom extends to our online Discussion boards in Blackboard. The online forum provides an important opportunity for students to work together as colleagues toward the shared goal of mastering microbiology. Inappropriate wording or imagery posted on these discussion boards will be turned over to the FIU Office of Student Conduct and Conflict Resolution, as per the Student Code of Conduct.

If for any reason, you experience extreme stress during the course due to difficult circumstances outside of class, Serbus and the students of Microbiology course respect your needs. We encourage you to take advantage of services provided by the supportive and knowledgeable staff at FIU Counseling and Psychological Services. They are reachable by phone at (305) 348-2277, and located at UHSC270. There are daily walk-in hours there from Monday-Friday. The Dean of Students, Cathy Akens is also standing by to help you access other resources. You can visit her office in GC219, call her at (305) 348-2797, or email her at akensc@fiu.edu. There is help out there, you do not have to go it alone.

I. What is the best study plan for success?

An optimal start is to read and/or review figures before coming to class. This will prime your brain to absorb and process information during class. Then bring a copy of the slide templates to class (downloaded from Blackboard), and add your own notes to the slides during class time. Also try to work through the clicker questions together with your neighbors during class. Studies show that student groups alternating who speaks, maximizes learning by all in the group (rather than everyone listening passively to a single person.) Within 2-3 days of attending class, talk yourself through the

notes again, either alone or with a partner to see if the information still makes sense. By the end of the week, check whether you can explain figures from the lecture (at the same level of detail covered in class) without looking at the notes, and try out some practice problems. Consult colleagues in person and in Blackboard, check out web resources and the book for alternate explanations, and come to office hours to talk things through. These combined strategies work far better than any single strategy alone or “cramming” right before an exam. As per Bloom’s Taxonomy (see diagram to the right), the Microbiology course works toward student cognition of material at multiple levels. You will know you’re getting there when it’s possible to comfortably explain the concepts through speaking and writing, and use the course information as a tool in practical scenarios.



Bloom's Taxonomy, adapted from:
http://ww2.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm

Examples of how Bloom’s taxonomy applies in the context of this class:

Remembering: What are the basic properties of a microtubule?

Understanding: Why do those properties drive a microtubule to behave as it does?

Applying: If you see that a chemical drives microtubules to peel apart, what does that mean?

Analyzing: If given raw data, can you compare/interpret microtubule responses to experimental versus control conditions?

Evaluating: Can you critically assess someone else’s report on microtubule-related data?

Creating: If you wanted to find new microtubule-manipulating drugs, how would you do that?

Our in-class meetings cover the material well at levels 1, 2, 3. We also do some level 4, 5 or 6 coverage in the context of clicker questions most days, though usually not all levels on the same day. Exam questions are written with the intent of addressing understanding at multiple levels.

J. What is the schedule of learning topics?

The schedule of topics and exam dates is shown below. A separate reading schedule will be posted in Blackboard to show specifically which pages from “Microbiology, an Evolving Science” that best match in-class content. As this is a new prep, pages will be posted as each lecture is created.

Though this course is based upon textbook material, keep this important point in mind as you go: *This course does not expect or require you to read all text to the letter.* Please use the text to help solidify your understanding of the material and help clarify various points from class as well. Plan to focus most on the figures within the indicated pages. Any changes that may occur during the semester with regard to the order of topics, etc, will be re-posted in Blackboard as notification.

clicker?	date	day	activity	topic
no	1/8	Mon	lecture/discussion	intro to microbiology
optional	1/10	Wed	lecture/discussion	prokaryotic cells
optional	1/12	Fri	lecture/discussion	prokaryotic cells
no	1/15	Mon	no class	MLK DAY HOLIDAY
optional	1/17	Wed	lecture/discussion	eukaryotic cells
optional	1/19	Fri	lecture/discussion	eukaryotic cells
yes	1/22	Mon	lecture/discussion	metabolism
yes	1/24	Wed	lecture/discussion	metabolism
yes	1/26	Fri	lecture/discussion	genes and DNA synthesis
yes	1/29	Mon	lecture/discussion	genes and DNA synthesis
yes	1/31	Wed	lecture/discussion	gene expression and protein synthesis
yes	2/2	Fri	lecture/discussion	gene expression and protein synthesis
no	2/5	Mon	Exam 1	<i>Material covered from 1/8-2/2</i>
yes	2/7	Wed	lecture/discussion	microbial growth
yes	2/9	Fri	lecture/discussion	virology
yes	2/12	Mon	lecture/discussion	virology
yes	2/14	Wed	lecture/discussion	genetics
yes	2/16	Fri	lecture/discussion	genomics
yes	2/19	Mon	lecture/discussion	genomics
yes	2/21	Wed	lecture/discussion	evolution and molecular systematics
yes	2/23	Fri	lecture/discussion	genetic engineering and biotechnology
yes	2/26	Mon	lecture/discussion	genetic engineering and biotechnology
no	2/28	Wed	Exam 2	<i>Material covered from 2/7-2/26</i>
yes	3/2	Fri	lecture/discussion	nutrient cycles
yes	3/5	Mon	lecture/discussion	nutrient cycles
yes	3/7	Wed	lecture/discussion	industrial microbiology
yes	3/9	Fri	lecture/discussion	industrial microbiology
no	3/12-3/16	Mon-Fri	no class	SPRING BREAK
yes	3/19	Mon	lecture/discussion	methods in microbial ecology
yes	3/21	Wed	lecture/discussion	environmental microbiology
yes	3/23	Fri	lecture/discussion	microbial symbiosis with plants and animals

yes	3/26	Mon	lecture/discussion	microbial symbiosis in plants and animals
no	3/28	Wed	<i>Exam 3</i>	<i>Material covered from 3/2-3/26</i>
yes	3/30	Fri	lecture/discussion	microbe-human interactions
yes	4/2	Mon	lecture/discussion	microbe-human interactions
yes	4/4	Wed	lecture/discussion	animal transmitted diseases
yes	4/6	Fri	lecture/discussion	pathogenicity and toxins
yes	4/9	Mon	lecture/discussion	pathogenicity and toxins
yes	4/11	Wed	lecture/discussion	diagnostic microbiology
yes	4/13	Fri	lecture/discussion	diagnostic microbiology
yes	4/16	Mon	lecture/discussion	antibiotics and antibiotic resistance
yes	4/18	Wed	lecture/discussion	antibiotics and antibiotic resistance
yes	4/20	Fri	lecture/discussion	<i>tba: topic selected by in-class vote</i>
no	week of April 23		<i>EXAM 4</i>	<i>Material covered from 3/30-4/20, plus cumulative component</i>