

## BIMM 120- Microbiology Course Syllabus

Spring 2017 – Lectures, Tuesdays & Thursdays, 12:30-1:50 PM in Price Theater.

**Instructor:** Giorgia Pirino, Ph.D.

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*Please include BIMM120, your name, and IA name in all emails to Dr. Pirino*

**Office:** H&SS 1145F

**Office Hours:** Tuesdays, 6:30-7:30PM. Location: York 2300. Additional office hours may be scheduled by appointment only. You are encouraged to take advantage of office hours. Please present your questions about course material in person during office hours, NOT by email.

I cannot guarantee an answer to your email, unless it is an urgent issue.

Office hours function as a relaxed forum to ask questions and discuss course content. *Office Hours will start in week 2 (Tuesday, April 11th).*

### **Instructional Assistants & Office Hours (OH):**

Leo Baumgart ([lbaumgar@ucsd.edu](mailto:lbaumgar@ucsd.edu)), OH: Thursdays 2:00-2:50 outside Hi Thai.;

Jacqueline Humphries ([jthumphr@ucsd.edu](mailto:jthumphr@ucsd.edu)), OH: Mondays 1:30-2:30PM outside Hi Thai;

Tiffany Gee ([tjgee@ucsd.edu](mailto:tjgee@ucsd.edu)), OH: Mondays 6:30-7:30PM at Hi Thai. I;

Linh Le ([ltl003@ucsd.edu](mailto:ltl003@ucsd.edu)), OH: Wednesdays 2:30-3:30PM in the PriceTheater Lounge;

Aaron Lee ([all097@ucsd.edu](mailto:all097@ucsd.edu)), OH: Tuesdays 2-3PM in the PriceTheater Lounge.

### **Discussion Sections - Time, Location & IA**

Discussion 03: Mondays, 11:00 AM-11:50 AM in WLH 2206- Jacqueline Humphries

Discussion 04: Mondays, 12:00 PM-12:50 PM in WLH 2206 - Tiffany Gee

Discussion 05: Mondays, 1:00 PM-1:50 PM in WLH 2206; - Leo Baumgart

Discussion 06: Mondays, 2:00 PM-12:50 PM in WLH 2206 - Leo Baumgart

Discussion 09: Wednesdays, 10 AM-10:50 AM in WLH 2206 - Linh Le

Discussion 10: Wednesday, 11 AM-11:50 AM in WLH 2206 - Jacqueline Humphries

Discussion 11: Wednesday, 7 PM-7:50 PM in HSS 2150 - Aaron Lee

**COURSE DESCRIPTION:** This is an introductory course in general microbiology designed for Biology majors. The overall themes of this course are: 1) microbial biology, biochemistry and genetics 2) microbial evolution and diversity, 3) interactions of microorganisms with humans and their environment. **Prerequisites:** Chem. 140A; Chem. 140B; BIBC 100 or BIBC 102 (may be taken concurrently). This course will be available through podcast at [podcast.ucsd.edu](http://podcast.ucsd.edu)

**Preparation and expectations:** To do well in BIMM 120, students should have a strong background in general biology and organic chemistry. It is assumed that students know basic biochemistry (the major types of molecules found in cells), as well as basic (introductory) cell biology, molecular biology and genetics. Students should review this material before the start of the quarter or during the first week. We will not specifically cover these principles in class because students should already know this material from their prerequisites. Students are responsible for any remedial learning required to understand the material presented in this course.

**Discussion Sections:** You are encouraged to take advantage of discussion sections. Although they are *optional*, they represent a great opportunity to ask for clarification and discuss course content. IAs will review class material, answer questions, review for exams, and discuss and answer questions about the problem sets assignments. Students should normally attend the section they are registered for, but may attend other discussion sections or IA office hours if space is available. However, since students will not be able to keep their midterm exams after they have been graded, students should come during the discussion section they are enrolled into to see their midterm exams. IAs will *only* bring exams of their enrolled students at discussion.

**Textbook (optional):** “Brock Biology of Microorganisms, 14th edition” Madigan & Martinko & Bender. Since the 15th edition is very new, I will refer to the 14th edition during class and the readings. If you have the 15th or 13th edition, it is ok. Just make sure that the readings correspond, since I will refer to the 14th edition during lectures. If you are using a different textbook, make sure that the course topics are covered. Scientific articles to complement the textbook readings will be provided before the lectures.

You may choose one of the following options:

- Purchase the textbook from the campus bookstore. Includes: Book a la carte
- Purchase access to the eText at [www.masteringmicrobiology.com](http://www.masteringmicrobiology.com)
- Purchase/rent the textbook via Amazon or other websites/bookstores.

A few copies of the textbook will be available on reserve at the Biomedical Library.

**Final grade:** Your final grade will be determined by the following assignments:

- Participation: 10 % of final grade (20 points) divided as followed:
  - Class participation/iClickers 5% (10 points).
  - Facebook page 5% (10 points; 1 point per week). Facebook page should work as a message board: students may post/answer questions on the Facebook page. This will provide instant

clarification to the entire class. Students who participate **actively** to the class' Facebook page receive points that will count toward the final grade. Active participation includes, but is not limited to, posting comments, scientific articles, answering questions posted by other classmates, etc. Facebook page: <https://www.facebook.com/groups/1921684128078277/>

- Quizzes: 20 % of final grade (40 points) divided as followed:
  - Individual quizzes 7% (14 points total; 7 points per each quiz)
  - Group quizzes 12% (24 points total; 12 points per each quiz)
  - Peer evaluations 1% (2 points)
- Exams: 70 % of final grade (140 points):
  - the best two midterm exams' scores (out of 70 each) will count toward the final grade

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Total points available: 200 points (100%)

Extra credit: Concept videos (see page 8)

**Grading scale**: Please assume this class is NOT curved and use the raw score (rounded up to nearest 0.01%) that you receive to calculate your grades.

For example, <60/100 is a F; <70/100 is a D; 70/100 is a 70 or C-; 73/100 is a 73 or C; 78.5/100 is a 78.5 or a C+; 80/100 is an 80 or B-; 83/100 is an 83 or a B; 88.5/100 is an 88.5 or B+; 90/100 is a 90 or A-; 93/100 is a 93 or A.

**Examinations**: We will have 3 midterm exams: 1) Exam 1 – April 27, 2017 (lecturers 2-6, including readings; concept video 1); 2) Exam 2 - May 18, 2017 (Lectures 7-10 including readings); 3) Exam 3 June 8, 2017 (lectures 11-15 including readings; concept videos 3 & 4); and 2 quizzes throughout the course (quiz 1 on April 20 (lecture 2-5 including readings); quiz 2 on May 11 (Lectures 7-9 including readings; concept video 2) respectively): Quizzes and exams will be taken during class time. Exams and quizzes are **not** cumulative.

**Make-up Exams**: *There are no make-up exams/quizzes.* No exceptions! However, considering that unforeseen circumstances may cause a student to miss an exam or not to perform well in one exam, the lowest score received in one of the exams will be dropped. Only the two midterm exams with the highest scores will count toward the final grade.

**Exams:** Exams will consist in short answer questions (mostly), and some true/false and fill in the blank questions. Regrade policy for the exams are discussed under the folder “Regrade Policy” on TritonEd. Please read the entire regrade policy before submitting a regrade request.

You must bring your **student ID** and a **pen (no pencil)**. Only exams written in nonerasable pen will be considered for regrades, and white-out may not be present on such exams (see regrade policy). **No** calculators, phones, smart watches, or other electronic devices are required or allowed. ALL personal items must be **CLOSED** and placed in front of the classroom. Make sure your phone is turned **OFF** and put away. Students will not be able to use the restroom during exams. Once you leave the room, you may NOT reenter the room until the exam is over.

During the exam: If you are sure that a question is written ambiguously, raise your hand and ask for clarification. Most ambiguities and problem questions should be identified this way, so that clarifications can be announced to the entire class and so that the grading key can be modified before the exams are graded. The IAs cannot define scientific words, help you understand a question, or confirm that you have chosen the correct answer.

Tips on how to prepare for the midterm exams: 1) Please use my lecture slides as a guide to know what to focus on.

2) If I covered a topic in lecture giving you more information than the ones discussed in the textbook, I expect you to know that. If I emphasized something, it is important.

3) Readings as well as scientific articles discussed in class and/or discussion sections are fair game for the exams.

4) When studying, try to make connections and apply concepts to hypothetical situations.

5) Study a little bit every day; rewrite notes; answer questions that have been asked during lecture, make your own questions, go to instructor and IAs office hours. Do not wait until the day before an exam to study: it won't work.

**Quizzes:** We will have 2 quizzes during the course. Quizzes will consist of multiple choice questions and/or true/false only and will not require an extensive application of concepts when compared to the midterm exams. Using the Team Learning format, each student will take a quiz on everything that has been covered in class until that point (see course schedule). After turning in the individual quiz, students will take the same quiz as a group (we will have groups of 4-5 students, assigned before by the end of week 1). **Each group will turn in one Scantron form to the IA and, after grading, each group member will receive the same grade.** Correct answers for the quizzes will be posted on TritonEd by the end of the day of the quiz.

The Team Learning format was developed by Dr. Larry Michaelsen (University of Central Missouri), and has been used at other universities for over 20 years. Dr. Michaelsen has kept

statistics for his groups over the decades, and has found that on average every group has outscored its highest-scoring member by 18%. This is the power of collaboration. However, if someone on your team is absent, they will be unable to contribute to the discussions, and therefore your group will most likely perform worse than it otherwise would have. *Later in the term you and your teammates will decide on which criteria to use when making your peer evaluations (4 points, added at the end to each student's final quiz score). Keep attendance and participation in mind when you evaluate each other at the end of the term.*

**Quizzes procedures:** You must bring your student ID and a #2 pencil and eraser. Scantron exam forms will be provided. **No** calculators, phones, smart watches, or other electronic devices are required or allowed. ALL personal items must be **CLOSED** and placed in front of the classroom. Make sure your phone is turned **OFF** and put away. Students will not be able to use the restroom during quizzes. Once you leave the room, you may NOT reenter the room until the quiz is over.

Always choose the *BEST* answer even though it might not be perfect. **Do not cheat!** *Disciplinary steps will be taken when cheating is discovered. These steps will include failing the quiz, and therefore, the course, and being reported to the appropriate university authorities.*

Turning in the quiz: When finished with the exam, show your student ID to your IA and turn in the completed and signed scantron form to him/her, and then wait quietly for the group quiz. After every student turns in his/her individual Scantron form, students will take the group quiz.

Scantrons are not returned. The Scantron scanning service itself has never made an error. But, Scantrons occasionally are graded with the wrong key. If you are sure that something must be wrong with your score, then discuss your concern with the Instructor.

**Quiz appeal:** As a group, students have time to challenge any answer their team got wrong by writing an appeal that consists of an argument supported by evidence from the readings/lectures. **Students can only appeal group quizzes, not individual ones.** Appeals are optional! Only written complete appeals written by one of the team members on behalf of the entire group (all team members' names should be there) and posted on the discussion forum on TritonEd will be accepted (link for appeal will be provided). Example of a successful appeal:

*Argument:* "We feel that A and D could both be considered correct answers to question 1. According to the readings, bacterial cell wall consists of peptidoglycans..."

*Evidence:* "On page 43 of the Brock's textbook it says that bacterial cell walls..."

Successful appeals will receive the point/s back for that question/s. Only one student per group may post the appeal for their team (all team members' names should be there) on the

discussion forum on TritonEd. Teams will have up to 2 days (by 11:59 PM) from the quiz date to write an appeal on TritonEd.

*Some quiz questions will be written in a way that, although there is one correct answer per question, another answer may be correct under specific circumstances.*

**Groups:** Students will work in permanent teams for the entire course. Groups are made by Sunday of week 1 and consists of students enrolled in the same discussion section. **If students like to be in the same group with other students, they must request so through the Discussion Forum on TritonEd (Teams & Concept Videos) no later than Wednesday of week 1 at 11:59 PM.** Students who do not request specific partners will be assigned to a group by Sunday of week 1. Students within the same group must be enrolled in the same discussion section. Students within the same group are encouraged to seat next to their team members during lecture to improve class discussion.

**Class Participation:** Participation in class is very important. The classroom should be active all week, not just during class hours. Student class participation should incorporate responses to their peers, their opinions, pertinent information regarding subjects covered in class, from things that students have read, and examples from their experience. The distinguishing feature of a well done class discussion might include an objective and critical analysis of lecture notes, reading assignments and what you have experienced. In the spirit of scholarly discussion, the instructor expects responses and viewpoints that agree and disagree with others as long as they apply to the topic and are respectful. In our learning model, the heart of active learning occurs through discussions that help students test their ideas, reinforce what they have learned, and share resources with others in the class. We will discuss several topics during lectures and students will have time to discuss them with their classmates first and then with the rest of the class. Occasionally I will call students during class to share their groups' discussions with the class on a specific topic. Students should seat next to their team members during lecture to facilitate discussion. Class participation points will be assigned via 3 ways: iClickers (see below), Facebook (see below), and class discussion (see below).

*To receive points for class participation, students should answer iClickers questions, share their opinions within the group and occasionally within the class, and participate in the class' Facebook group.* During class, some questions may be asked through iClickers and, most of the times, will expand with a group discussion.

*iClickers:* To facilitate class discussion, we will use iClickers during lecture. Students will receive points for clicking, NOT for giving a correct answer. Students who participate in iClickers and are present (clicking) for at least 85% of the lectures will receive full credit.

We will start recording iClickers participation in week 1. iClickers are available for purchase at the UCSD bookstore. Once you have purchased your Clicker, you can register it on TritonEd – go to the tools section and look for the iClicker registration link. I strongly recommend the i>Clicker 2 as it is very convenient. Older versions of i>Clicker are acceptable if you already have one, but you may need to reset your clicker every time it goes into sleep mode. **Do NOT count on sharing a clicker with another student in the same quarter as the software only records scores for one student, even if both of you are in different classes. After registration, your iClicker is linked to your name on the class roster. Therefore, sharing iClickers is illegal.**

*Class Discussion:* Students will receive points for participating, which implies discussion within their team and/or other classmates, NOT for giving a correct answer. In the spirit of scholarly discussion, the instructor expects responses and viewpoints that agree and disagree with others as long as they apply to the topic and are respectful. In our learning model, the heart of active learning occurs through discussions that help students test their ideas, reinforce what they have learned, and share resources with others in the class. Students who participate in class discussion (see above) and are present for 85% of the lectures will receive full credit.

*Facebook page:* Our Facebook page should work as a message board: students may post/answer questions on the Facebook page. Students who have a specific question about the course/course material are encouraged to post it on our Facebook page. Other students may wonder the same and the answers will provide an instant clarification to the entire class without misunderstandings. Students who participate **actively** to the class' Facebook page receive points that will count toward the final grade. Active participation includes, but is not limited to, posting comments, scientific articles, answering questions posted by other classmates, etc. during the entire course. Just “liking a post” or agreeing with someone else’s post does not qualify for participation points. Students receive points at the end of each week (starting at the end of week 1; max 1 point per week, total of 10 points) and will be added at the end to generate the final grade for the Facebook participation. Here is the link to the Facebook page: <https://www.facebook.com/groups/1921684128078277/>

**Problem sets:** In preparation of the midterm exams, students may have an opportunity to practice on questions that may have a similar format/critical thinking that will be presented

during exams. Few questions may be occasionally assigned throughout the course and will be reviewed during discussion sections by IAs. Problem sets are optional and will not be turned in for a grade.

**Extra Credit & Concept videos:** Students enrolled in BIMM120 may make 4 videos on specific topics assigned by the instructor one week in advance (see calendar). Two videos will cover topics covered in class by the instructor, whereas two videos will cover topics not covered in class by the instructor. After the deadline, the entire class will have few days to watch the videos and related questions will be asked during quizzes/exams. Students who make videos will receive extra credit points (4 points; extra 2% of final grade). **If interested on the video preparation, please add your name to the survey under “Concept Videos” on TritonEd by Wednesday of week 1 at 11:59 PM. Students who would like to request specific partners for their teams should also add their preference to make the concept videos to the Discussion Forum on TritonEd by Wednesday of week 1 at 11:59 PM** (Look for “Teams & Concept Videos” under the discussion forum). To receive 4 points students must make **ALL** 4 videos. No extra credit will be given to students who do not make concept videos (no points for watching only) or make less than four videos. Instructions on how to upload videos will be provided later in the course. Videos must be uploaded by the deadlines specified in the course calendar. *Note: groups for concept videos do not necessarily need to be the same as the ones for the quiz, but they can be the same. Also, students within the same group may not be enrolled in the same discussion section.*

**Regrade Requests:** All regrade requests should be submitted in writing *within 5 days* of receiving the graded material. Please check the regrade policy on TritonEd for more information.

**Statement on Office for Students with Disabilities (OSD):** To receive accommodation, students must present or email their “Authorization for Accommodation” (AFA) form provided by the Office for Students with Disabilities (OSD) to the instructor. Extended exam times will overlap with the regular exams and usually start at the same time as the regular exams. If OSD exam times for this course conflict with another class, then this course should not be taken. It is the student’s responsibility to make sure class and exam schedules for all of their classes do not have any conflicts.

**Statement on Academic Integrity:** Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all



academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind. The consequences of being caught cheating can be severe. Information can be found here: <http://www.ucsd.edu/current-students/academics/academic-integrity/index.html>

Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship: <http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2>

Academic misconduct will NOT be tolerated. Any student who engages in suspicious conduct will be confronted and subjected to the disciplinary process. Cheaters will receive a failing grade on the exam or assignment, and/or in the course. They may also be suspended from UCSD pursuant to University guidelines.

**Academic misconduct includes but is not limited to:**

1. **Cheating**, such as using "crib notes" or copying answers from another student during the exam.
2. **Plagiarism**, such as using the writings or ideas of another person, either in whole or in part, without proper attribution to the author or the source. Copying anything from any source is plagiarism if the source is not clearly cited. Plagiarism is stealing someone else's ideas and presenting them as your own.
3. **Collusion**, such as engaging in unauthorized collaboration on exams or assignments, completing for another student any part or the whole of an exam or assignment, or procuring, providing or accepting materials that contain questions or answers to an exam or assignment to be given at a subsequent time.

**Electronic Devices:** Textbooks, notes, cell phones, pagers, laptop computers, and all other electronic devices must be off and stored out of sight during exams. The use of these devices during an exam is considered an act of academic dishonesty and will be dealt with accordingly. Also, during class students cannot surf the web, use their cell phones, or do anything not related to the class.

## Tentative Schedule \*

CLASS/LECTURES	DATE	Lecture Topic
1	04/04/2017	Introduction to the course
2	04/06/2017	Introduction to Microbiology
3	04/11/2017	Introduction to Microbiology & Bacteria
4	04/13/2017	Bacteria (cont.)
5	04/18/2017	Bacteria (cont.)
	04/20/2017	<b>Quiz 1</b>
6	04/25/2017	Bacteria
	04/27/2017	<b>EXAM 1</b>
7	05/02/2017	Bacteria (cont.) & Archaea
8	05/04/2017	Microbial metabolism
9	05/09/2017	Microbial growth
	05/11/2017	<b>Quiz 2</b>
10	05/16/2017	Control of Microbial Growth & Antibiotic resistance (cont.)
	05/18/2017	<b>EXAM 2</b>
11	05/23/2017	Antibiotic resistance (cont.)
12	05/25/2017	How evolution triggers microbial decisions
13	05/30/2017	Metagenomic analysis
14	06/01/2017	Human Microbiome
15	06/06/2017	Human Microbiome & Final Review
	06/08/2017	<b>EXAM 3</b>

\* Changes to the course syllabus will be announced in class.

See Reading Schedule on TritonEd for specific readings highly recommended for each lecture. Also, readings may be part of quizzes/exams.