Bacteriology

BIMM 120 Spring 2016

Instructor:

Cindy Gustafson-Brown (Dr. Gus)
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office hours: Thursdays 2:15-3:15, HSS 1145L

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.

Course description

This course covers the structure, growth, molecular genetics, and physiology of prokaryotic microorganisms, with emphasis on the diverse activities of bacteria and on the interaction of various bacterial species with their environment. **Prerequisites:** Chem. 140A; Chem. 140B; BIBC 100 or BIBC 102 (may be taken concurrently).

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 Appendix 1 of the textbook (Biological Molecules) 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.

Classroom etiquette

Because this is a large lecture class, minimizing distractions is important. Please have respect for your classmates and the instructor by turning off or silencing cell phones, not talking, and minimizing other distracting activities in class.

Required textbook

Microbiology, an Evolving Science, 3rd ed., by Slonczewski & Foster
The 2nd edition is okay, but students are responsible for correlating the text and figures between the two editions. Copies will be available on reserve at the Biomedical Library.

Podcast

This course will be available at podcast.ucsd.edu

Course website

The website will be on TritonEd (formerly TED).

Discussion sections

Sections will start on Mon, April 4.

In section you will review the lecture material and/or discuss the readings.

Section	Days	Time	Location	IA	Email
A01	Mon	3-3:50 PM	WLH 2001	Than Kyaw	thansoekyaw@gmail.com
A02	Mon	4-4:50 PM	WLH 2009	Michael Tom	mktom@ucsd.edu
A03	Mon	5-5:50 PM	WLH 2009	Michael Tom	mktom@ucsd.edu
A04	Mon	6-6:50 PM	WLH 2009	Drew Dickinson	ddickins@ucsd.edu
A05	Mon	7-7:50 PM	WLH 2009	Jacob Lofton	jlofton@ucsd.edu
A07	Wed	8-8:50 AM	WLH 2009	Andrew Cooper	a5cooper@ucsd.edu
A08	Wed	9-9:50 AM	WLH 2009	Andrew Cooper	a5cooper@ucsd.edu
A09	Wed	10-10:50 AM	WLH 2009	James Cordero	jrcorder@ucsd.edu
A10	Wed	11-11:50 AM	WLH 2009	Jacky Ho	jwh026@ucsd.edu

IA office hours

Name	Day	Time	Location
Michael Tom	Mon	3-3:50	Hi Thai
Jacob Lofton	Tues	2-2:50	Muir Woods Cafe
Jacky Ho	Wed	1-1:50	Roger's
Drew Dickenson	Thurs	10-10:50	HSS 1145A
James Cordero	Thurs	12-12:50	Price Center Theater
Than Kyaw	Fri	12-12:50	Treehouse
Andrew Cooper	Fri	2-2:50	Muir biology 1208

iClicker FAQ

Q. What kind of clicker should I buy and where can I get it?

The iClicker, preferably version 2, although the regular iClicker works too. You can get one at the UCSD bookstore.

Q. Can I share a clicker with another student?

NO!

Q. Where and when should I register my clicker?

Register it on class web site on TED. Look for the link in the Tools folder.

Q. When do the scored clicker questions start?

On Thurs, March 31, in lecture.

Q. What are the max points possible?
50 points = 5% of your grade.

Q. How many days will we have clicker questions?
Probably ~17 days.

Q. How many days will I have to be present to qualify for full participation points?
15 days … you get 2 free absences without penalty

Q. How many participation points is each day worth?
3.33 points per day up to a maximum of 50 points

Q. How do I get the participation points each day?
You must answer 80% of the questions posed that day. The number of questions will vary from lecture to lecture.

Q. If my battery fails, or I forget my clicker, but I do attend the class, do I get participation for that day?
No. You are allowed 2 "permitted" absences – so you don't have to ask me about making up the missed days. We don't have to negotiate credit; you can still get all 50 participation points from the remaining days attended.

Q. If I attend fewer than 15 lectures, will I get any participation points?
Yes, you can still get 3.33 points each day if you answer 80% of the questions that day.

Q. What is my best strategy for getting all the points?
Do your reading in advance, show up for as many lectures as possible, stay awake, and PARTICIPATE!

Exams

Exams will be closed-notes/closed-book, primarily short answer with a few true/false, multiple choice, and short essay questions. You will be accountable for **all material covered in lecture and all required reading**.

BRING STUDENT ID. It will be checked at the exam.

You must write in nonerasible pen and avoid using white-out in order to be considered for a regrade. Your handwriting must be legible; we will disregard answers which cannot be deciphered.

Because this is Dr. Gus' first time teaching BIMM 120, there are no old exams to post.

Review sheets will be posted on the web site shortly before each exam, and the IA's will conduct **review sessions** the night before each exam:

1st review sessions	Thurs, April 28, during lecture
	Thurs, April 28, 7-8:30 PM
2nd review session	Wed, June 8, 7-9 PM

Graded midterms will be available in the hallway of HSS 1145 (if you sign the waiver). Note that the external doors are locked after business hours. Graded final exams may be viewed by appointment with Dr. Gus, but may not be taken home.

Missed exams

There are NO alternate exams. Put the exams on your schedule, including the evening midterm. Make sure your class schedule has NO exam conflicts, including the final exam! If you must miss an exam due to an unavoidable emergency (e.g. serious illness), you **must contact the instructor within 24 hours** of the missed exam to determine if you are eligible for a make-up exam. You will be required to provide official documentation. Without such documentation there will not be a make-up, and you will receive a failing grade for that exam. Do not ask to reschedule an exam for any reason other than a *dire emergency*. Make-up exams are decided case-by-case. They *may* be an oral or essay exam.

Regrades

Only midterms written in non-erasable pen will be considered for a regrade, and white-out may not be present on such exams. If an error has been made in the grading of your exam, you may submit it to Dr. Gus for a regrade *within 3 days* of when they are returned. Do not go to a IA for a regrade, although you should have one of them explain the answer to you before you come to me. Your midterm or final exam must be submitted with a *written* description of the grading error. I will not entertain discussions of such appeals before they are made in writing. I will consider *no more than three* "potential" errors per exam. If you submit an exam for a regrade, I may choose to regrade the entire exam. If I think the IA was too generous, for the sake of accuracy I reserve the right to *lower* your score. Finally, it is critical that you *read the key* before submitting your regrade. It will be posted on the web site when the graded exams are distributed.

Course grade

This course will be graded on a curve. The class average will be a B minus. It is expected that there will be at least 20% A grades.

5%	50 points	iClickers in lecture
35%	350 points	Midterm
60%	600 points	Final exam

This is a very competitive course. The instructor must be completely fair to ALL students in the class and **cannot** under any circumstance give special consideration to an individual student. You will receive the grade that you have earned with no exceptions. There are always students who just miss a higher grade at each cutoff score (usually ~23% of the class is within 1% of the next grade). Grades **cannot** be changed for individual students for any reason. If you have what you consider extraordinary circumstances that deserve special consideration, then you should contact an academic advisor in your college.

How can I succeed in BIMM 120?

1. **Read** the assigned pages before lecture. You will understand the lectures better and learn more from the clicker questions. The lecture will be based upon the reading, but there will not be enough time to cover every detail in class. Nevertheless, you are accountable for all reading on the exams.

   Keep up with the reading. Pace yourself with the reading schedule. If you bump into material that is too technically challenging, *don't get bogged down*. Skip it (temporarily). Return to the most difficult material later.

2. **Outline** the important points as you read. This will help you remember the flow of information and contextualize the details. Use index cards, or a notebook, to summarize the important points.
3. **Look up words** you don't understand in the glossary, a dictionary, or online.
4. **Come** to class and sit toward the front. Participate in clicker questions and discussion.
5. **Listen** to podcast.
6. **Review** your notes within 24 hours of the lecture.

   Even more effective: rewrite (outline) your notes within 24 hour of the lecture.

   There will be material presented in lecture that is not in the textbook. You are accountable for all lecture material.
7. **Review** the PowerPoint slides with your lecture notes. PowerPoint slides will NOT contain the instructor's notes. They will contain announcements, illustrations, diagrams, and photos which augment the lecture. They will be posted after each lecture. You are accountable for everything in the PowerPoint slides.
8. **Study** a little bit every day, or a few times per week. Repetition over time is the key to retaining information. Your goal is to establish new neural pathways in your memory and fire them often! Cramming does not accomplish this.
9. **Study** with other students, and choose those who are serious about academics. Make up questions and quiz each other. Anticipate potential exam questions. This is a strategy that has been demonstrated to increase student learning.
10. **Go** to your discussion section. There will be opportunities to review the material, ask questions, and possibly take practice quizzes.
11. **Go** to the office hours of the IA's and the instructor. This will encourage you to review the material, in order to have questions to discuss.
12. **Go** to the review sessions.
13. Utilize any **study aids** provided on the course web site or by the textbook publisher.
14. If you are having academic difficulty, OASIS may help. They provide tutoring, as well as classes in study skills and time management. http://oasis.ucsd.edu/
15. If you are having personal difficulties, do not hesitate to seek help at Counseling and Psychological Services (which is free to students). They can help you get over many types of hurdles. http://caps.ucsd.edu/

    Their self-help library of resources covers many relevant topics, and can be accessed at http://caps.ucsd.edu/selfhelp.html

Academic integrity

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. Cheating will not be tolerated, and I will fail any student caught engaging in academic dishonesty. All exams will be closed-book and closed-notes, so all personal materials must be stowed under your seat. Only exams written in nonerasible pen will be considered for regrades. Exams will be photocopied for comparison with submitted regrades. Because all exams are required for satisfactory completion of this course, any student caught cheating on an exam will receive a failing grade for the course. He/she may also be suspended from UCSD.

Tentative class schedule

Note: Each chapter includes 2 pages devoted to a "special topic." You are not required to read these pages.

Date	Session	Topics	Required reading*	pages
Tues, Mar 29	1	Course overview Microbial life	sections 1.1-1.3	17
Thu, Mar 31	2	Microbial life Start microscopy	section 1.4-1.6, 2.1	17
Tues, Apr 5	3	Microscopy	sections 2.3, 2.5	10
Thur, Apr 7	4	Finish microscopy Cell structure and function	pp 80-91	12
Tues, Apr 12	5	Cell structure and function	pp 92-99, sections 3.4	10.5
Thur, Apr 14	6	Cell structure and function	section 3.5, pp 113 (2nd column) -116	7
Tues, Apr 19	7	Growth and development	pp 120-124, section 4.3	11.5
Thur, Apr 21	8	Growth and development	sections 4.4-4.6 (not the calculations on generation time)	12
Tues, Apr 26	9	Growth and development Control of microbial growth	sections 4.7, 5.1-5.2	10.5
Thur, Apr 28	10	Review session during lecture		
Fri, Apr 29		**MIDTERM (7:30-9PM)**		
Tues, May 3	11	Control of microbial growth	sections 5.6, 5.8 (not the 1st column of p 183)	13
Thur, May 5	12	Bacteriophage	sections 6.4, pp 223-4	7
Tues, May 10	13	Genomes, metagenomics	pp 238-242, 245, 248 (from section 7.3) - 250 (1st paragraph only), section 7.4, pp 270 (metagenomics) -272	12
Thur, May 12	14	Gene expression		
Tues, May 17	15	Bacterial genetics		
Thur, May 19	16	Synthetic biology		
Tues, May 24	17	Energetics & catabolism		
Thur, May 26	18	Organo-, litho-, & phototrophy		
Tues, May 31	19	TBA		
Thur, Jun 2	20	TBA		
Thur, Jun 9	--	**FINAL EXAM (7-10 PM)**		

Reading assignments for lectures 14-20 to be posted later.

* *Microbiology, an Evolving Science*, 3rd ed., by Slonczewski & Foster