

BIMM 120 | Bacteriology | Spring 2013

Professor Eric Allen

Tues/Thurs 12:30 – 1:50 pm, WLH 2001

	DATE	LECTURE TOPIC	BROCK 13 TH ED. READINGS
FUNDAMENTALS OF MICROBIOLOGY	Tu Apr 02	1) Overview & Introduction to the Microbial World	Ch1 (1-10), Ch2 (34-36), Ch16 (454-467)
	Th Apr 04	2) Cell Structure & Function Part I: Cell Walls & Membranes	Ch3 (48-64)
	Tu Apr 09	3) Cell Structure & Function Part II: Other Structures & Inclusions; Biofilms	Ch3 (64-81), Ch23 (674-676), Ch5 (133)
	Th Apr 11	4) Molecular Biology of Bacteria & Archaea	Ch6 (151-157; 170-174), Ch7 (192-197)
	Tu Apr 16	5) Microbial Differentiation, Regulation & Sensing	Ch8 (210-223; 226-231)
	Th Apr 18	6) Genomics of Microorganisms	Ch12 (314-323; 327-333) + Paper #1
	Tu Apr 23	7) Mobile Genetic Elements & Horizontal Gene Transfer	Ch6 (159-162), Ch10 (273-281; 286-288), Ch12 (333-336) <i>Homework 1 assigned</i>
	Th Apr 25	8) Microbial Growth & Cell Cycle	Ch5 (118-132)
	Tu Apr 30	9) Microbial Trophic Dynamics: Carbon & Energy	Ch4 (86-90; 92-98; 106-108) <i>Homework 1 due</i>
	Th May 02	*** MIDTERM EXAM ***	-----
MICROBES IN THE ENVIRONMENT	Tu May 07	10) Metabolic Diversity I: Fermentation & Respiration	Ch4 (98-101), Ch14 (373-377; 381-388; 390-394; 395-397)
	Th May 09	11) Metabolic Diversity II: Photosynthesis & Other Autotrophies	Ch13 (341-354; 354-358; 361-367)
	Tu May 14	12) Microbial Ecology I: Microbial Species & Evolution	Ch16 (447-452; 467-470) + Paper #2
	Th May 16	13) Microbial Ecology II: Biogeochemistry & Elemental Cycles	Ch23 (670-673), Ch24 (699-709)
	Tu May 21	14) Microbial Bioremediation	Ch24 (713-717)
	Th May 23	15) Microbial Biotechnology: Natural Products & Bioenergy	Ch15 (412; 415-417; 420-422), Ch26 (782-784)
	Tu May 28	16) Metagenomics: Sampling the Unknown	Ch22 (649-658) +Paper #3 <i>Homework 2 assigned</i>
	Th May 30	17) Symbiosis: Plant- & Animal-Microbe Interactions	Ch25 (723-730; 732-741; 745-749), Ch27 (793-796)
	Tu Jun 04	18) Microbial Viruses (Dr. Lisa Zeigler, JCVI)	Ch9 (237-238; 247-254) <i>Homework 2 due</i>
	Th Jun 06	19) Final Review....	-----
	Mo Jun 10	*** FINAL EXAM 11:30 AM – 2:29 PM ***	

Class web site: <http://ted.ucsd.edu/> (syllabus, lectures, assigned papers, homeworks, etc.)

Textbook: "Brock Biology of Microorganisms" (13th ed., 2010) by Madigan, Martinko, Stahl, Clark or
"Symbiosis: The Pearson Custom Library for the Biological Sciences" (custom textbook)

CONTACT INFORMATION

Professor Eric Allen

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Office Hours: *by appointment*

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SIO Shuttle: Pick up outside Peterson Hall – get off at SIO shuttle stop on La Jolla Shores Dr (white van; every 15 min)

Shuttle information: <http://blink.ucsd.edu/Blink/External/Topics/Policy/0,1162,12960,00.html>

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Office Hours

Thursdays 8:30-9:30am @ Mandeville Coffee Cart

Mondays 1-2:30pm @ Mandeville Coffee Cart

Tuesdays 4-5pm @ Café Roma

Tuesdays 5:30-6:30pm @ Hi Thai

Mondays 4-5:30pm @ Café Roma

Fridays 1:30-2:30pm @ Price Center Theater

Tuesdays 4-5pm @ Mandeville Coffee Cart

Thursdays 4-5:30pm @ Café Roma

Wednesdays 10-11:30am @ Hi Thai

Discussion section times and locations:

Section	Time	Location	TA
A01	Mon 3:00 - 3:50 pm	CENTR 217B	Katherine
A02	Tue 4:00 – 4:50 pm	CENTR 218	Jessica
A03	Tue 5:00 – 5:50 pm	CENTR 218	Katherine
A04	Mon 5:00 – 5:50 pm	U413 1	Joshua
A05	Mon 6:00 – 6:50 pm	U413 1	Samantha
A06	Mon 7:00 – 7:50 pm	U413 1	Caroline
A07	Mon 8:00 – 8:50 pm	U413 1	Caroline
A08	Mon 8:00 – 8:50 pm	SOLIS 109	Erika
A09	Thu 9:00 – 9:50 am	SOLIS 109	Samantha
A10	Thu 10:00 – 10:50 am	SOLIS 109	Ian
A11	Fri 2:00 – 2:50 pm	HSS 2150	Sirena
A12	Fri 3:00 – 3:50 pm	HSS 2150	Tina
A13	Fri 4:00 – 4:50 pm	HSS 2150	Jessica

You are not required to attend section but you will find doing so helpful as the TA's will review class material and answer questions about the lectures, papers and recommended readings.

Sections will start the week of Monday April 8th (week 2)

Grading:

There will be one midterm (200 points), one final exam (200 points), and two written homework assignments (50 points each) with a total of 500 points up for grabs in this class. Final grades will be based on the midterm score, the final and the homework assignments. Each exam will consist of true/false and multiple-choice questions, with questions taken

directly from the lectures and papers. Readings from the text book are highly recommended but are not required. Topics covered in the textbook readings but not covered in class will NOT be on the exams....whew!

Homework written assignments (50 points each):

For the homework assignments, you will be given one or two questions and asked to write a short essay. Your answer(s) to each question should occupy no more than 1 page (it is okay if more than one page but please be concise). The questions will be posted on the website along with the due date (one week following the date assigned). A printed copy of your homework should be submitted in class by the due date AND uploaded to Ted. Be sure to provide references to the source material (primary literature) used to obtain your answers!

Course Website

The course website contains additional required readings (primary research papers & ancillary materials; these will be posted in .pdf format for your convenience) in addition to lectures in .pdf format. Why more reading? Well, microbiology is a highly dynamic science. Many exciting and important findings have yet to find their way into the textbooks which is why we turn to the primary research literature. Not only is reading papers fun but the correct approach to scientific literature can be a very rewarding experience. The materials/methods sections will provide you a 'train of thought' as to how the experiments were conducted/conceived ("how did they do that?") and critical reading of the paper will allow you to evaluate whether or not the results justify the conclusions ("why did they do that?"). These papers will provide a more thorough picture of modern microbiology. The papers will be introduced in class on the Tuesday of the week indicated, and discussed further in your next section meeting. Questions from the assigned papers will appear on the Midterm and Final exams!

Useful websites:

Small Things Considered: <http://schaechter.asmblog.org/schaechter/> (odds and ends from the microbial world)

Microbe wiki: <http://microbewiki.kenyon.edu> (great resource for exploring a rich variety of microorganisms)

PubMed: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?tool=csl&holding=ucsdlib> (journal literature portal)

Assignment schedule at a glance...

Week	Week Starting	Assignment
1	Tu Apr 02	No paper or homework the first week!
2	Tu Apr 09	No paper or homework the second week!
3	Tu Apr 16	<u>Paper 1</u> : TBA
4	Tu Apr 23	Homework 1 assigned
5	Tu Apr 30	Homework 1 DUE & MIDTERM EXAM on Thursday May 2 nd
6	Tu May 07	No paper or homework this week!
7	Tu May 14	<u>Paper 2</u> : TBA
8	Tu May 21	No paper or homework this week!
9	Tu May 28	<u>Paper 3</u> : TBA & Homework 2 assigned
10	Tu Jun 04	Homework 2 DUE

General guidelines for reading the papers:

Familiarize yourself with related topics: Read the related material in the textbook to familiarize yourself with the subject matter. Research papers are written for people who already know something about the subject matter.

Try to answer the following questions as you read the required papers:

1. What questions were addressed in this paper?

Frequently the introduction (or the first few paragraphs of Science and Nature articles) will present background information and raise the questions that will be addressed in the paper.

2. What were the main conclusions from the paper?

The main conclusions will be summarized in the abstract and further discussed in the discussion section. Why were these conclusions important?

3. What experiments were performed to answer these questions?

These will be briefly summarized in the abstract, sometimes also in the discussion (or the last few paragraphs of science or nature papers), and will be discussed at length in the results section of the paper.

4. For each experiment:

What conclusion did the experiment allow? What were the caveats of each experiment? (i.e. were there alternative explanations?) What experiments ruled out these alternatives?

Read the assigned papers before attending section and ask your TA any questions you may have. If questions remain, attend either your TA's or Dr. Allen's office hours.

To prepare for the exams:

1. Attend the lectures! *ALL questions will come directly from the lectures and assigned papers.*
2. Read the related material in the text (note: the reading assignments will always follow from section-to-section within a chapter; if you have any questions ask your TA). *These readings will reinforce the lectures and provide additional information that you will find useful.* Also don't be afraid to do extra reading to understand the material. Ultimately, if you understand the concepts you are in a much better position to answer the questions!
3. Read the papers! *Both the midterm and final exam will have questions about the papers; these questions will require that you understand the experiments and what conclusions they reveal.*
4. Attend section regularly, as you will be able to ask questions about the lectures and papers.
5. Bring a #2 pencil and pens to class! *We will use scantrons for our exams – unless otherwise noted, the scantrons will be provided for you at the exams.*
6. Do not cheat! *Disciplinary steps will be taken when cheating is discovered. These steps may include failing the exam and being reported to the appropriate authorities.*

Based on prior experience, the students who do best in this class attend the lectures and sections, read the textbook for background content and read the papers before attending section. Make this be YOU!

Exam Inquiries:

During the exam: If you think that a question is written ambiguously or feel that more than one answer is correct, raise your hand and ask me or a TA for clarification.

After the exam: Prepare a written explanation, with documentation if possible (i.e. references to text), and deliver the query to your TA via email. *Just one written inquiry, and no verbal inquiries, will be considered for each exam, from each student.* If we find that a question has more than one answer or should be discarded after the exams have been graded, all of the exams will be re-graded using the new answer key.

The following deadlines apply for submitting a re-grade and will be strictly observed: Midterm, Tuesday May 21; Final exam, Friday June 21.

*****A MESSAGE FROM OUR FRIENDS AT THE UCSD ACADEMIC INTEGRITY OFFICE:**

Statement of Academic Integrity:

Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship <<http://www-senate.ucsd.edu/manual/appendices/app2.htm>>. 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, and/or in the course. They may also be suspended from UCSD pursuant to University guidelines. (Translation: just don't do it!)

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 of the source.
3. Collusion, such as engaging in unauthorized collaboration on exams, completing for another student any part or the whole of an exam, or procuring, providing or accepting materials that contain questions or answers to an exam or assignment to be given at a subsequent time.