

BIO 226 R FALL 2004
GENERAL MICROBIOLOGY: MICROBIAL CELL STRUCTURE AND GENETICS
UNIQUE # 50460-50475

Instructor:

Dr. Pratibha Saxena
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Lecture:

M, W 11:00-12:00 ESB 223

Discussion:

50460	M 8:00-9:00	JES A 215A
50465	M 9:00-10:00	RAS 213
50470	F 10:00-11:00	ESB 333
50475	F 11:00-12:00	ESB 333

Text Book:

MICROBIOLOGY, by Prescott, Harley, and Klein, 5th ed., Wm. C. Brown, 2002.

In addition, the following books (on reserve in the science lib) / web sites may be helpful:

- *Brock* Biology of Microorganisms (10th edition, 2000) Prentice Hall Publishing.
- Molecular Biology of the Cell (3rd edition, 1994) Alberts et al Garland Publishing.
- Molecular Cell Biology (4th edition, 2000) Lodish et al W. H. Freeman and Company.
- Principles of Genetics (2nd edition, 2000) Snustad and Simmons, John Wiley and Sons
- <http://www.mhhe.com/biosci/cellmicro/prescott>
- <http://www.prenhall.com/madigan>

Course Web site:

<http://www.sbs.utexas.edu/psaxena>

Prerequisites:

Students are expected to have taken **BIO 211, 212, 213, 214 (OR 302), BIO 325 AND CH 302** (one year of **freshman-level chemistry**) or their equivalent and obtained a grade of at least C in each of these courses. You are expected to review / recall the material you covered in those courses as and when needed.

I will NOT repeat what has already been covered in the prerequisite courses.

BIO 226 R is designed to cover the following:

- 1) Microbial cell structure and its relationship to essential cell functions.
- 2) Microbial genetics-maintenance and transfer of genetic information.

This is an introductory course in Microbiology. We will cover a wide range of topics from cell structure to Genomics. During lectures (on Mondays and Wednesdays) besides covering the basics, I will try to bring as much current information as possible, including interesting topics that are not listed in the lecture schedule.

Even though attendance will not be taken in lecture, it is in your interest to attend each class period. The material covered in the class will be emphasized on the exam.

Discussion sessions will elaborate on the material covered in the class. This is the time to get your questions answered about the material presented in the lecture or the text. **Active participation in the discussion sessions and turning in answers to the assignment questions will count towards 10 % of your total course grade.**

Examinations:

There will be **three written exams** given during regular class time **and one comprehensive make-up exam** given at the final exam time indicated in the course schedule. Check for room number on the Finals schedule. **Each exam**, including the comprehensive make-up, is worth 100 points and **will count as 30 % of your total grade**. After the third exam, grades will be posted. Students who missed an exam or who would like to improve their grade for the course should take the make-up exam. If you take the make-up exam your final grade will not be lower than the grade posted after the third exam regardless of your performance on the make-up exam. Your three best exam scores and the grades from the assignments will be used to determine your grade for the course.

There will be several styles of questions in the exam e.g. multiple choice, fill in the blank, matching, true - false, labeling the diagram, and those requiring a short answer.

Missed Exam:

A missed exam will be scored as a zero, which will be replaced by the score on the comprehensive make-up exam given at the time of the final. There will be no other means of making up missed exams.

Grades:

Average of your three best exam scores (90%) will be added to the average of the assignment grades (10%) to determine your final grade for the course. Students wishing to improve their grade should take the comprehensive make-up exam as it will not lower their grade in any way!

[Use the comprehensive make-up exam ONLY for emergency purposes, and NOT because you had another exam that day. Remember the exam is comprehensive and held during the finals week and you'll be having exams for other courses during those days.]

Grading System:

The following criterion will be used for assigning grades. However, a curve may be applied after the finals.

A grade: 90% and above	B grade: 80 to less than 90%
C grade: 70 to less than 80%	D grade: 60 to less than 70%
F grade: less than 60%	

Re-grading exams:

When submitting exams for re-grading, please make sure that you indicate in writing on another sheet of paper the nature of the mistake, attach it to your exam and **return the exam within one week from the day the graded exam was returned in the class**. You must compare your answers to those posted on the key.

Exams returned for re-grading are subject to being **re-graded for all the questions**. That is, as a result of re-grading, your grade may become **either higher or lower**.

Exams will not be re-graded more than once.

Academic dishonesty:

Dishonesty in any form will be reported to the Dean's office and will result in a course grade of "F". Exams are photocopied for comparison. A UT ID must be presented in order to turn in your exam.

Students with disabilities:

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641.

Study habits that will help you do better in the exam:

- Read the assigned text before coming to the class to familiarize your self with the topic.
- Attend BOTH lecture and discussion class regularly and take notes.
- Go over what you studied in the class the same day. Learn the definitions of the terms that are written in "bold" in the text.
- Outline for the lectures is on the web. Print these out and bring to the class.
- Use the assigned text to supplement what was covered in the class.
- Do NOT leave studying for the exam for the last few days before the exam!
- Study at least 4-6 hours each week for this course.
- Form study groups. Attend and actively participate both in the class and in the review/discussion sessions.
- Review old exams (on reserve in the under graduate library and on web), and compose your own questions and answer them to self-evaluate your learning.
- Look up pages xxv and xxvi in Prescott for a summary on how to do well and make the most of the Textbook.
- Learning center in Jester can help you with getting tutors.
- Seek help as soon as you feel the need.
- Some topics will not be discussed in the class (these would require self reading: you could get clarification on these from both the TA and your instructor).
- Go to the TA's office hours.
- Come to my office hours. I am there to help you. If you are unable to attend the scheduled office hours, let me know and we can arrange for meeting at another time.

Tentative Lecture Schedule for BIO 226R

Date	Topic/exam	Reading Assignment Text chapter
Aug 25	Introduction – Classification Microbial world	19 (p. 422-426, 428-438) 1
Aug 25-Sep 3	Review and Discussion (R/D) (Chemistry / Biochemistry)	Appendix 1*
Aug 30	Study of Microorganisms	2, 5*, 7
Sep 1	Microbial Structure (Organization / plasma membrane)	3; 20 (p. 451-453) 5 (p. 100-104)
Sep 6	Labor Day HOLIDAY	
Sep 8	Prokaryotic cell wall	3; 20 (p. 451-453)
Sep 13	Prokaryotic cell wall contd.	10 (p. 221-223)
Sep 15	Capsules, Flagella, Endospores	3
Sep 20	Microbial growth & Control of microorganisms	6, 7*, 35 (Tables 35.1, 35.4)
Sep 20-24	Review of Metabolism / Energy Flow	8, 9*
Sep 22	Metabolism / Synthesis	8, 9
Sep 27	Metabolism / Synthesis	10
Sep 29	Exam 1	
Oct 4	DNA replication	11
Oct 6	Replication contd.	11
Oct 11	RNA structure & transcription	11, 12
Oct 13	Translation	11; 12
Oct 18	Translation contd.	12
Oct 20	Gene regulation	12
Oct 25	Gene regulation	12
Oct 27	Gene regulation	12
Oct 29	Gene regulation	12
Nov 1	Exam 2	
Nov 3	Mutant detection / isolation	11 (p 251-254)
Nov 1-5	Mutation / Phenotypes	11 (p.244-251)*
Nov 8	DNA repair	11 (p. 254-257)
Nov 10	Microbial genetics	13
Nov 15	Conjugation / Transformation	13
Nov 17	Phages, Transduction	13, 17 (p 390-395)
Nov 22	Recombinant DNA Technology (RDT)	14
Nov 24	RDT	14
Nov 29	Genomics	15
Dec 1	Exam 3	
Dec 13 (Mon 10:00 a.m.-12:00 p.m.)	COMPREHENSIVE MAKE-UP EXAM (Check room # on Finals schedule)	

* Covered in discussion sessions

BIG BACTERIA

Look up this article using the following link.

<http://micro.annualreviews.org/cgi/reprint/55/1/105.pdf>