

Biology 210 Fundamentals of Microbiology
Lecture Syllabus and Schedule
Spring 2009 – GMCS 333

Instructor Information

Martha Myers, Ph.D.

Office and Hours: LS 125; MW 9:00 am – 11:00 am or by appointment. To schedule an appointment, ask before or after class or email me at mmyers3@mail.sdsu.edu. I am not available via email to *conduct* office hours. If you have questions/concerns related to class please schedule an appointment and I will be glad to go over things with you. Also, I will be reserving GMCS 333 periodically for informal reviews on Friday afternoons; the times to be announced.

Course Description

Biology 210 is a 4-unit course that introduces students to the fundamental aspects of microbiology including microbial diversity, cell structure/function, physiology, genetics, reproduction, and host-parasite relationships. Basic techniques and procedures used by microbiologists are emphasized in the laboratory. It is designed for nursing, physical therapy, and food and nutrition majors.

Prerequisites

Biology 201A or Biology 100, 212, and Chem 100, 102, or 130. Note that if you do not have the prerequisites, you will be dropped from the course.

Required Materials

Tortora, Funke, and Case, *Microbiology an Introduction*, 9th Ed.

DeMers, *Fundamentals of Microbiology Lab Manual*, 7th Ed.

LeBoffe and Pierce, *A Photographic Atlas for the Microbiology Laboratory*, 3th Ed.

Course objectives

When you complete this course you should have an understanding of:

- 1) The importance of microorganisms to our global society (students are invited to bring relevant news articles to class for discussion);
- 2) The structure/function of cells, their metabolism and how they grow/divide;
- 3) The tools and techniques that are used to classify and identify microbes as well as those used in biotechnology to develop products;
- 4) Beneficial and detrimental host/microbe interactions;
- 5) The role of the immune system in the host response when challenged by microbes;
- 6) The contributions that microbes make to the environment and society in terms of geochemical cycling, remediation, and food production.

Blackboard Website

The Blackboard website is located at: <https://blackboard.sdsu.edu/webapps/login>. You must start with your RedID number and password to enter the site. You will have access to two sites:

- the combined (cx) site which will contain your lecture scores, announcements, syllabus, and course documents, and
- your section site where your lab TA uploads lab scores.

As the semester progresses, I will move lecture scores into the lab sections. At the end of the semester you will see your total lab points, total lecture points, and total points for the course. Your letter grade is reported in webportal.

Clickers

I will use a classroom response system (aka clickers) this semester. Clickers are small handheld devices used to foster interaction, active learning, and quick feedback for faculty and students. I will use clickers for course content review and to award extra credit points (to be announced). You are required to obtain a clicker as a learning resource (like a required text). You must purchase and register your clicker prior to the second class meeting, and bring your clicker to every class prepared to participate. We will practice to let everyone get used to them (including myself). Also, if you are experienced with clickers, please help out those who are not familiar with the process. For our class, you will register your clicker via Blackboard. More information on the registration process can be found at <http://clicker.sdsu.edu>. Students may not use other students' clickers; doing so is a violation of academic integrity.

Management of Course Material, Exams and Grading

The best way to manage the material in this course is to clear up problems EARLY! If you build a good foundation, it will be easier to understand the interrelationships of the concepts. Contact your TA or myself if you need help. Consider forming study groups or at least have one contact that you can go over things with and who could provide you with notes from class if you miss it.

Style of Exams: The questions on the exams will be multiple choice. The questions will vary from simple recall to interpretive/analytical types where you will demonstrate a deeper understanding of a concept.

What to bring:

- Bring a ParSCORE™ (red) form and a No. 2 pencil.
- Calculators, cell phones, or other electronic devices are not to be used.
- You will need your SDSU ID card when turning in the exam.

Points for Lecture and Lab:

- The total number of points for the course is 600: 300 for lecture and 300 for lab. Lecture points come from four in-class **exams** @ 65 points each and four worksheets @10 points each. The **worksheet** accompanies the material covered for each test and will be posted on Bb at the beginning of each set of chapters. For example, Worksheet #1 is now on Bb and covers

material for Chapters 1, 3, & 4 that will be covered on Exam #1. Turn in the worksheet answers on ParSCORE™ test forms on the designated date (see lecture schedule). Both the test and worksheet scores will be posted on the Bio 210 combined (cx) site.

- You are welcome to work on the worksheets with study partners and to use your text and other resources to find answers to the questions. The worksheets serve as study guides but are not comprehensive reviews for tests; you will still need to study class notes, class outlines, power points, and the text as you go through the course.
- The final exam is not cumulative and is scheduled during final exam week.
- The details of your lab grade will be given in your lab sections.

Suggestions for Exam preparation:

- Start today. For example, I posted a table that could provide you a framework to organize some of the information in Chapter one. See if this approach works for you; it is not a required task but it might help you to study the material.
- Use the objectives from each chapter as guidelines for studying.
- Make sure that you have read the relevant chapters and the chapter summaries.
- Use the CD that comes with your text. Each chapter includes resources to enhance your learning. Also, each chapter has three chapter tests/quizzes that provide excellent review questions for your tests. You might occasionally see questions from your CD on the tests. (☺)
- Take the test at the end of each chapter (the answers are in Appendix G). Again, questions from those tests occasionally show up on your tests. (☺)
- Make sure your notes are up-to-date. I may add information in lectures that is not on the outlines or PowerPoint slides and may show up on the exams. If you miss a class, get the notes from someone.
- Study your worksheets including the options not used to answer questions.

Make-up exams

- If, for a valid reason, (illness, etc.) you are unable to take an exam at the scheduled time, **you must contact me within 24 hours.** The make-up exam may be of a different format than the one given to the class. If you fail to notify the instructor, you will receive a “zero” for the grade. The policy for missing the final is the same as for hour exam.

The Grade: You must pass both the lecture and the lab components of the course and one grade will be given for both. Final grades will be determined based on the following scale (600 points):

Grade	%	Points
A	93 – 100	558– 600
A-	90 – 92.9	540 – 557.4
B ⁺	87 - 89.9	522 – 539.4
B	83 - 86.9	498 – 521.4
B-	80 – 82.9	480 – 497.4
C ⁺	77 - 79.9	462 – 479.4
C	73 - 76.9	438 – 461.4
C-	70 -72.9	420 – 437.4
D	60 - 69.9	360 – 419.4
F	< 60	< 360

Note: Your final grade reflects points earned.

- I will round up your raw score if it ends in 0.5 or greater and your grade will reflect the rounded up number. While the score will not be edited to show the greater number, it will be evident if the change results in a higher grade. For example, if your raw score is 539.5, your score becomes 540 and you will receive an A-.
- I do NOT round up percents.

Gradebook access

Your test and lab scores will be posted in Blackboard as previously explained. If you have questions about your scores, please take care of them when they come up. See your TA for the lab scores and see Dr. Myers about lecture scores. If you have a concern about a score for Tests 1, 2, or 3, it must be raised within one week of receiving your result. To review your final, contact me within two days after scores are posted. Requests for reviews/regrades will be denied after the stated periods.

Etiquette for emails and face - to-face discussions.

The faculty and staff associated with Bio 210 are your advocates and want you to succeed in this course. You have every right to ask to review an issue with the appropriate faculty or staff. It is NOT acceptable to write inflammatory emails or use expletives in face-to face meetings. An individual who displays disruptive behavior will be asked to leave the class and further departmental action may be taken.

Attendance and withdrawal policies

You are expected to attend lecture and laboratory sessions and be prepared for that day's work. More than two **unexcused** absences in lab will result in a "zero" in your lab grade. I do not take roll in lecture but be advised that extra credit incentives will be offered in lecture and information is occasionally conveyed that is not on the outlines or PowerPoint slides.

February 11, 2009: Last day to add/drop classes or change grading basis. No schedule adjustments after 6:00 pm.

Academic Honesty

Students are expected to be honest and ethical at all times in their quest of academic goals. There is "zero tolerance" for academic dishonesty. This includes:

- Unauthorized assistance on an examination, quiz, or "Unknown";
- Falsification or invention of data;
- Plagiarism (to take and pass off as one's own work the work or ideas of another);
- Any unauthorized access of an instructor's account;
- Any other serious violation of academic integrity identified by the instructor.

If there is evidence of cheating on any test, quiz, report, etc, those involved will receive no credit on the item. The lecture and appropriate lab instructors will be meet with those involved and students will not be allowed to sit together during subsequent exams, quizzes (lecture and lab). Further departmental action may be taken.

Special Accommodations

Please see me if you have a verifiable disability so that we can accommodate your needs. Also, discuss the matter with your TA.

Conditions may necessitate changes in this syllabus. Changes will be announced in Lecture and posted in the "Announcements" section of Blackboard. You are responsible to note changes.

TENTATIVE LECTURE SCHEDULE

Day	Date	Wk	Chapter/Reading in <i>Tortora</i>	Lecture Topic	Reading in <i>Photog. Atlas</i>
M	1/26	1	1	Administrative/Introduction to Microbiology	
W	1/28		1	Introduction to Microbiology	
M	2/2	2	3	Microscopy	pp. 23 – 26
W	2/4		3/4	Microscopy/ Cell Structure & Function	
M	2/9	3	4	Cell structure & Function	

W	2/11		4	Cell Structure & Function	
M	2/16	4	2 (pp. 34 – 50)	Chemical Principles HAND IN WORKSHEET #1	
W	2/18			EXAM #1 (Ch. 1, 3 & 4)	
M	2/23	5	5	Metabolism	pp. 201 – 208
W	2/25		5	Metabolism	
M	3/2	6	6	Microbial Growth	pp 83 – 86
W	3/4		6	Microbial Growth	pp 92- 93
M	3/9	7	7	Control of Microbial Growth	
W	3/11		13	Viruses HAND IN WORKSHEET #2	pp 86 - 88
M	3/16	8		EXAM #2 (Ch. 5 6 & 7)	
W	3/18		13 & pp. 567 - 576	Viruses; HIV & AIDS	pp 123 - 127
M	3/23	9	14	Principles of Disease and Epidemiology	
W	3/25		14	Principles of Disease and Epidemiology	
3/30 – 4/3 NO LECTURE OR LAB – HAPPY SPRING BREAK					
M	4/6	11	15	Microbial Mechanisms of Pathogenicity	
W	4/8		15	Microbial Mechanisms of Pathogenicity	
M	4/13	12	16	Innate Immunity	pp 99 - 104
W	4/15		16	Innate Immunity HAND IN WORKSHEET #3	
M	4/20	13		EXAM #3 (Ch. 13 – 16)	
W	4/22		17	Adaptive Immunity	
M	4/27	14	17	Adaptive Immunity	
W	4/29		18	Applied Immunology	pp 113 - 119
M	5/4	15	8	Genetics	
W	5/6		8	Genetics	
M	5/11	16	9	Biotechnology HAND IN WORKSHEET #4	pp 105 - 109
W	5/13		20	Antimicrobial Agents	
M	5/18			FINAL EXAM (Ch. 17, 18, 8, 9, & 20) 8:00 – 10:00 am	

BIOLOGY 210 - Laboratory course description - Spring 2009

Web Site: <http://www.sci.sdsu.edu/classes/biology/bio210/lab/demers/>

PREREQUISITES: Will be enforced. **Biology 201A; or Biology 100, 212 and Chemistry 100 or 102 or 130**

SAFETY: The laboratory exercises will use chemicals and living microorganisms, both of which could be harmful or infectious if handled improperly. You will be taught how to work in the laboratory properly. **Please follow the instructions that the laboratory instructors provide.** Also, if you have an allergy to fungi or certain chemicals, if you are pregnant, or if you have a compromised immune system, please contact the professor.

LAB ASSIGNMENTS: The lab manual is to be used as a workbook and students are required to **complete all of the laboratory exercises** in the lab manual. This includes the "Evaluation of Results" section (Purpose, Data, Conclusions and Discussions), and the questions, as well as the **Case Histories** in the appendix. The student should use lecture notes, lab notes, the textbook, lab manual and other texts to find the answers to the questions and to work on the Case Histories. Additional questions will be added as needed. The lab quizzes will test your knowledge of all of the material. The **manual** will be checked periodically by the TA. Pop quizzes will be given throughout the semester to assure that students are coming to class prepared. Each student will be required to give an **oral presentation (10-15 minutes, with PowerPoint) on a topic in microbiology, to be decided by the student and TA. A general outline of the presentation must be handed in before the day of the oral, and a detailed outline is due on the day of the presentation.** Students are required to **write two lab reports, following scientific format, on unknown microorganisms. Students are required to turn in both a hard copy and an electronic copy of both lab reports and both outlines for the orals.** If plagiarism is discovered, students are liable to be expelled, suspended or placed on probation, according to Section 41301 of the California Code of Regulations. *Plagiarism is formal work publicly misrepresented as original; it is any activity wherein one person knowingly, directly, and for lucre, status, recognition, or any public gain resorts to the published or unpublished work of another in order to represent it as one's own* (Lindey, Alexander. Plagiarism and Originality, 1952).

EXAMINATIONS: There will be five lab quizzes, worth 40 points each, spread over the 15 week semester. They might include practical lab questions. These will be given during the laboratory portion of the course to individual sections, on the dates listed in the syllabus. The lowest quiz grade will be discarded and **there will be no makeup's.** A missed quiz will count as the lowest grade to be dropped. Please do not discuss the quiz material with other sections of the class, this will only lower your grade. **There will be no changes to an assignment 's grade later than two periods after it is returned.**

GRADING:	Based on a total of 300 points: (There is no extra credit)		
160	Lab quizzes; 5 (40 pt. each), drop one	20	Performance evaluation
5	Unknown take home	20	Lab Manual
15	Lab Report # 1 (First Unknown)	15	Case Histories (5 x 3 points each)
30	Lab Report # 2 (Second Unknown)	15	Pop quizzes; (3 X 5 points each)
20	Oral report		

ATTENDANCE: Laboratory attendance is mandatory. If you are absent or late, or leave before the assigned work is completed, you are letting your lab partners down and compromising your own grade, by losing performance evaluation points. . You **WILL NOT PASS** the course if you miss more than 2 periods without a valid medical excuse. Arriving late (more than 15 minutes) consistently (more than 2) or leaving early before the lab work is completed will be counted as an unexcused absence.

REPORTS: take home quizzes, written reports, etc.: All written reports are due on the dates listed in the syllabus. The oral reports are due on the date decided between you and your TA. Points will be lost for handing in late work. **The penalty for late work will be 10% per lab day.**

LAB PERFORMANCE: This grade is determined by attendance, ability to master the technical skills, preparation before coming to class, professionalism, your ability to accept responsibility and work well with your partners, and your attitude and cooperation in class. Lab checks (pop quizzes) will be instituted to enforce your preparation before lab.

FINAL GRADES: An independent letter grade will be assigned for both lecture and lab. You must achieve a passing score in each. These will be averaged and turned into the registrar. Students are expected to keep up in lecture and it is assumed that the student is absorbing the lecture theory. Lecture also assumes a satisfactory performance in lab. **Final grades cannot be changed after they are submitted to the registrar.**

LABORATORY SCHEDULE (Tentative)

Prepared by Marlene DeMers

BIO 210 Spring 2009

You are required to read the Assigned Readings listed below in your lab manual and textbook, before coming to each class.

Laboratory Manuals (required): *Fundamentals of Microbiology*, 7th edition revised, DeMers

A photographic Atlas for the Microbiology Laboratory; 3rd edition; Leboffe & Pierce

Lecture Text (required): Tortora, et al; *Microbiology An Introduction*, Ninth Edition

Please note exercise numbers and Appendices refer to the Laboratory Manual by DeMers. Use the Atlas by Leboffe to find references to the lab exercises. Use the Tortora index (and other textbooks) to find references to the lab exercises.

BIO 210 LECTURE & LAB SECTION MEETING TIMES

[all labs meet in NLS 416]

{Last day to add or drop is Monday, February 11 before 6 PM}

LECTURE (GMCS 333)	MW 0800 - 0850
SECTION 1 (00360)	MW 0900 - 1140
SECTION 2 (00361)	MW 1200 - 1440
SECTION 3 (00362)	MW 1500 - 1740
SECTION 8 (07675)	MW 1800 - 2040
SECTION 4 (00363)	TTH 0800 - 1040
SECTION 5 (00364)	TTH 1100 - 1340
SECTION 6 (00365)	TTH 1400 - 1640
SECTION 7 (03944)	TTH 1700 - 1940

TENTATIVE

LAB # DATE

EXERCISE

READINGS:

Lab Manual

LAB #	DATE	EXERCISE	READINGS: Lab Manual
1	1/22 Th	First Day of classes: No Lab	
2	1/26, 27 M, T	Labs begin: Crash Lists, Introduction, Laboratory description, Overview of course (Includes Microbiology oral topics discussion); Necessary supplies, Lab Safety. Video: "Unseen life on Earth" (The Microbial Universe) Review of calculations	Handouts Safety DVD &; vi-ix Video Handout
3	1/28, 29 W, Th	Check in (keys, lockers & drawers) for enrolled students and crashers with add codes Enrollment continued, add codes, etc. Digital Video: Lab Safety continued 1: Brightfield microscopy (prepared slides) Troubleshooting the microscope, con't. Digital Video (lab manual): Using the Microscope 2: Other Microscopes; (darkfield, phase) 3: Observing Protozoa, Hay Infusion, Cyanobacteria	DVD & Safety; vi-ix Ex. 1 Microscope DVD DVD Ex. 2 Ex. 3
4	2/2, 3 M, T	1, con't: Brightfield microscopy, con't. 2: Other Microscopes, con't. (stereo) 3: Observing Protozoa, Hay Infusion, Cyanobacteria 4: Observing Fungi and Yeast	Ex. 1, con't. Ex. 2, con't. Ex. 3, con't. Ex. 4
5	2/4, 5 W, Th	4, con't.: Fungi con't. 5: Observing Bacteria; Gallery of microorganisms; cell shape & arrangement 6: Aseptic Technique (inoculations) Introduction to Case Histories (practice with #1)	Ex. 4, con't Ex. 5 Ex. 6 (DVD) Appendix N

**TENTATIVE
LAB # DATE**

EXERCISE

**SUGGESTED READINGS:
Lab Manual Atlas**

6	2/9, 10 M, T	5: Observing Bacteria; Gallery continued 6: Aseptic Technique (smears from inoculations) 7: Smear preparation 8: Simple staining 11: Culture media preparation Case History # 6 Due	Ex. 5, con't. Ex. 6, con't. Ex. 7 (DVD) Ex. 8 (DVD) Ex. 11, Appendix L Website
7	2/11, 12 W, Th	QUIZ # 1 (Exercises; 1,2,3,4,5,6,7,8) 7: Smear preparation, continued 8: Simple staining, continued 9: The Gram Stain (start) Appendix B: Troubleshooting the Gram Stain 11, con't: Culture media preparation con't Note: Wednesday, February 11 is Last day to add or drop classes	Ex. 7, con't. Ex. 8, con't Ex. 9 Appendix B Ex. 11, con't
8	2/16, 17 M, T	9, con't: Gram staining, con't. 10: Miscellaneous staining: Acid-Fast staining, Capsule 12: Streak Plate Technique (day 1) 13: Specimen transport (collection) 14: Hand Washing	Ex. 9, con't. Ex. 10 Ex. 12 Ex. 13. Ex. 14
9	2/18, 19 W, Th	9, con't: Gram staining, con't. 10: Miscellaneous staining, continued, Endospore 12 con't: Culture techniques con't. (day 2) 13, con't: Specimen Transport (inoculation) 14, con't: Hand Washing con't. 15: Bacterial plate counts Appendix C: Dilutions	Ex. 9, con't Ex. 10, con't Ex. 12, con't Ex. 13, con't Ex. 14, con't Ex. 15 App. C
10	2/23, 24 M, T	12 con't: Culture techniques con't. (day 3) 13, con't: Specimen transport con't. (results) 15, con't. Bacterial counts con't. (results) Appendix C: Dilution's 16: Bacterial Growth Characteristics: Osmotic Pressure, Oxygen, Pigment production, pH, Temperature (A-E) (Day 1: Inoculations)	Ex. 12, con't. Ex. 13, con't Ex. 15, con't App. C Ex. 16 A - E
11	2/25, 26 W, Th	12, con't: Culture techniques, con't. (day 4)(Gram stain) 16, con't: Bacterial Growth Characteristics con't. (A-E) (Results and Interpretations) 18: Staphylococci (day 1)	Ex. 12, con't Ex. 16, con't. Ex. 18
12	3/2, 3 M, T	QUIZ # 2 (Exercises; 9,10,11,12,13,14,15,16) 17: Selected Physiological and Biochemical Tests Introduction to Gram Negative Rods, (B-E) (Gram stain) 18, con't: Staphylococci, con't. (day 2) (Gram stain)	Ex. 17 A - E Ex. 18,con't
13	3/4, 5 W, Th	17, B-E con't: Physiological and Biochemical tests 17, F-K start: Physiological and Biochemical tests 18, con't: Staphylococci, con't. (day 3) 24: Take home unknown quiz available on line Case History # 2 Due	Ex. 17, con't Ex. 17 F-K Ex. 18,con't Web Site / Blackboard Appendix N

**TENTATIVE
LAB # DATE**

EXERCISE

**SUGGESTED READINGS:
Lab Manual Atlas**

LAB # DATE	DATE	EXERCISE	SUGGESTED READINGS: Lab Manual Atlas
14	3/9, 10 M, T	17, con't: Physiological and Biochemical tests, con't. B-K 18, con't: Staphylococci, con't. (day 4) 21: Antiseptics & Disinfectants 22: Antibiotic sensitivity testing 24: Unknown #1 – (day 1) (streak plates)	Ex. 17, con't Ex. 18, con't Ex. 21 Ex. 22 Ex. 24
15	3/11, 12 W, Th	21, con't: Antiseptics & Disinfectants, day 2 22, con't: Antibiotic's day 2 23: Isolation of Antibiotic Resistant Mutants (day 1) 24: Unknown #1, con't. – (day 2) (Gram stain & inoculations) 30: Isolation of antibiotic producer from soil; collection Unknown take home quiz Due	Ex. 21, con't Ex. 22, con't Ex. 23 Ex. 24, con't Ex. 30 App. D - I
16	3/16, 17 M, T	19: Streptococci (day 1)(throat cultures) 23: Isolation of Antibiotic Resistant Mutants (day 2) 24: Unknown # 1, con't. – (day 3) 30: Isolation of antibiotic producer from soil, day 1 Choice of Microbiology oral topic & date DUE	Ex. 19 Ex. 23, con't Ex. 24, con't
17	3/18, 19 W, Th	QUIZ # 3 (Exercises; 16,17,18,21,21,22,24) 19: Streptococci, con't. (day 2) 24: Unknown #1, con't. – (day 4)(results)	Ex. 19, con't Ex. 30, con't Ex. 24, con't
18	3/23, 24 M, T	19, con't: Streptococci, con't. (day 3) 20: Urine cultures, day 1 Brief Outline of Oral Due	Ex. 19, con't Ex. 20
19	3/25, 26 W, Th	20, con't: Urine cultures, day 2 24, con't: Unknown #1, con't. How to write the report 30,con't: Isolation of antibiotic producer from soil, day 2 Case History # 5 Due	Ex. 20, con't Ex. 24, con't Ex. 30, con't Appendix N
	3/30 - 4/3	No Classes, Laboratory Closed Happy Spring Break!	
20	4/6, 7 M, T	19, con't: Streptococci, con't. (day 4) 24: BEGIN UNKNOWN #2 (day 1)(streak plates) 30,con't: Isolation of antibiotic producer from soil, day 3 Video: "The Coming Plague" "Revenge of the Microbes" Case History # 3 Due Begin Oral presentations NOTE: Detailed Outlines Due on the day of oral	Ex. 19, con't Ex. 24, con't Ex. 30, con't Video Appendix N
21	4/8, 9 W, Th	Lab Report # 1 Due (unknown #1) 24, con't: Unknown #2, con't (day 2)(Gram stains) 30,con't: Isolation of antibiotic producer from soil, day 4 Oral presentations continued	App. D - I Ex. 24, con't Ex. 30, con't
22	4/13, 14 M, T	QUIZ # 4 (Exercises; 19, 20, 23, 24, 30) 24, con't: Unknown #2, continued (day 3) 26: Water Microbiology - Presumptive test (day 1), Membrane filter method demonstration 28: Microbiology of Wine Making (day 1)	Ex. 24, con't Ex. 26 Ex. 28

**TENTATIVE
LAB # DATE**

EXERCISE

**SUGGESTED READINGS:
Lab Manual Atlas**

23	4/15, 16 W, Th	24, con't: Unknown #2, continued (day 4) 25: Immunology: Agglutinations: Slide & Tube agglutinations & demonstrations 26, con't: Water Microbio., con't., Confirmed test (day 2) 27: Spoilage of meat (day 1) (inoculations) Oral presentations continued	Ex. 25 Ex. 26, con't Ex. 27
24	4/20, 21 M, T	25: Immunology: Agglutinations continued 26, con't: Water Microbiology (day 3) 29: Microbiology of Milk(day 1): Standard plate count of milk, Reductase test demonstration, Fermented milk products (yogurt) Case History # 4 Due Oral presentations continued Start Cleanup	Ex. 25, con't Ex. 26, con't Ex. 29 Appendix N
25	4/22, 23 W, Th	25: Immunology: Agglutinations continued if necessary 26, con't: Water Microbiology (day 4) 27, con't: Spoilage of Meat, con't. (day 2) 28, con 't: Microbiology of Wine Making, con't. (day 2) 29, con't.: Fermented Milk Products (day 2) (plate counts) (yogurt tasting) Unknown #2 Written Lab Report Due Continue Cleanup Oral presentations continued	Ex. 25, con't Ex. 26, con't Ex. 27, con't Ex. 28, con't Ex. 29, con't App. D - I
26	4/27, 28 M, T	Continue Cleanup Oral presentations continued	
27	4/29, 30 W, Th	Quiz # 5 (Exercises; 24,25,26,27,28,29) Oral presentations continued Finish Cleanup	
28	5/4, 5 M, T	Oral presentations continued Finish Cleanup	
29	5/6, 7 W, Th	Lab Coats Wrapped and Autoclaved Lab Check Out KEYS DUE! ** Oral presentations continued (if necessary)	
30	5/11, 12 M, T	LAST DAY OF CLASSES Oral presentations continued (if necessary)	
		Bio 210 Final: Monday May 18 0800-1000	

**** You must follow the check out procedure and turn in your lab keys BEFORE Grades are due, Or you will receive an Incomplete!**

PLEASE NOTE: Lab Coats may be picked up UNTIL the end of finals week ONLY!

After finals week, they are considered donated,

Thank you! Marlene & Tom, 4th floor prep room

Have a great summer break!

