

Molecular Biosciences 306 - General Microbiology Lab Fall 2008

Dates	Experiments	Exercise Pages	Quizzes & Assignments
Aug 25	Lab Overview, Safety, Diversity of Microorganisms, Fundamental Skills		
Aug 26-27	Check-in, Lab kits, Safety, Ex 1-1 Glo-Germ™ Hand Wash Education, Ex 2-1 Diversity and Ubiquity of microorganisms		
Aug 28-29	Ex. 1-3 Aseptic transfer, Ex. 1-4 Streak Plate, Ex. 1-6 Spread Plate		
Sept 1	HOLIDAY- LABOR DAY		
Sept 2-3 Sept 4-5	Ex 2-6 through 2-9 Cultivation of Anaerobes and Aerotolerance Ex 2-8 Temperature, Ex 2-9 pH, Ex 2-10 Osmotic Pressure		
Sept 8	Control of Microorganisms		Quiz 1
Sept 9-10 Sept 11-12	Ex 2-11 The Lethal Effect of UV Light on Microbial Growth Ex 2-12 Chemical Germicides Disinfectants & Antiseptics		
Sept 15	Quantitative Techniques		Take home dilution quiz
Sept 16-17 Sept 18-19	Ex 6-1 Standard Plate Count, Dilution lecture, Dilution worksheet Closed System Growth (Handout, not lab manual)		Growth Curve Exercise
Sept 22	Microscopy		Growth Curve Exercise & Dilution Quiz due
Sept 23-24 Sept 25-26	Ex 3-1 Intro to the Microscope, Ex 3-3 Eukaryotic Microbes Protozoa & Fungi Ex 3-4 Simple Stain, Ex 3-5 Negative Stain Ex 3-6 Gram Stain, Ex 3-8 Capsule Stain		
Sept 29	Microscopy cont'd		Quiz 2
Sept 30-Oct 1 Oct 2-3	Ex 3-7 Acid-fast Stain, Ex 3-9 Endospore Stain, Ex 3-10 Wet Mount Motility Ex 3-12 Morphological Unknowns		Check off list due
Oct 6	MIDTERM		Morphological Unknown due
Oct 7-8 Oct 9-10	Ex 6-3 Plaque Assay Ex 7-7 Methylene Blue Reductase, Ex 7-8 Food Preservation by Fermentation- Yogurt, Sauerkraut, and Wine		
Oct 13	Differential Tests		Hydrolysis report
Oct 14-15 Oct 16-17	Ex 5-10, 5-11, 5-12, 5-13, 5-17, Hydrolysis Reactions Ex 5-1, 5-2 through 5-7, 5-18, 5-22 Oxidation, Fermentation, Respiration, Utilization, Combination Differential Media and Motility		
Oct 20	Selective Media		Quiz 3
Oct 21-22 Oct 23-24	Ex 4-1 through 4-3 Selective Media for Isolation of Gram-Positive Cocci Ex 5-20 Blood Agar, Ex 5-21 Coagulase, Staphylococci & Streptococci Ex 4-4 through 4-6 Selective Media for Isolation of Gram-Negative Bacilli		Mini unknown due
Oct 27	Unknowns Project		Unknown report assigned
Oct 28-29 Oct 30-31	Ex 9-1 through 9-3 Bacterial Unknowns Project Ex 9-1 through 9-3 Bacterial Unknowns Project		
Nov 3	Unknowns Project cont'd		Quiz 4
Nov 4-5 Nov 6-7	Ex 9-1 through 9-3 Bacterial Unknowns Project Ex 9-1 through 9-3 Bacterial Unknowns Project		
Nov. 10	Environmental Microbiology		Unknown report due
Nov 11-12 Nov 13-14	Holiday: Veteran's Day Ex 7-5 MFT, Ex 7-6 MPN Method for Total Coliform Determination		
Nov 17	Medical microbiology		
Nov 18-19 Nov 20-21	Ex 7-1 Snyder Test, Ex 7-2 Antibiotic Susceptibility Test MPN continued???? Ex 7-4 Epidemiology Ex 7-3 MMWR Report		
Nov 24-28	THANKSGIVING BREAK		
Dec 1	Molecular Biology and Serology		Quiz 5
Dec 2-3 Dec 4-5	Ex 8-3 Bacterial Transformation: The pGLO™ System Ex 8-6 Blood Typing		
Dec 8	Review for Lab Final		
Dec 9-10 Dec 11-12	FINAL PRACTICAL EXAM Check-out, Lab party		

Molecular Biosciences (MBIOS) 306
Fall 2008

Instructor

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Teaching Assistants (TA's)

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Lab Attendance Policy

Attendance is mandatory! If you miss any significant portion of a lab, it will be considered an absence (excused or unexcused). You must make up these absences by arrangement with your TA. If you cannot make up the designated material, you may be able to make up the lab by writing reports. Consult with your TA.

Up to three "make-up" absences are allowed.

Four laboratory absences will result in a failing grade for the course.

Lab Fee

There is a mandatory \$27.14 lab fee that will be charged to your WSU account.

Required Laboratory Manual

Microbiology Laboratory Theory and Application by Leboffe and Pierce, **Brief Edition (Note: we are using a new edition this semester)**

Grading

Quizzes	100 pts
Morphological Unknown	20 pts
Take-home Dilution Quiz	20 pts
Growth Curve Graph	10 pts
Mini Unknown	10 pts
Hydrolysis Report	20 pts
Midterm Written Exam	80 pts
Assignment Check-off List (part of the midterm)	20 pts
Final Practical Exam	100 pts
Unknown Report	100 pts
<u>Subjective TA Points</u>	<u>20 pts</u>
Total points possible	500 pts

Final course letter grades are assigned using a standard performance criteria of the 500 available points:

Above 94%	A
90.0% to 93.9%	A-
87.0% to 89.9%	B+
84.0% to 86.9%	B
80.0% to 83.9%	B-
77.0% to 79.9%	C+
74.0% to 76.9%	C
70.0% to 73.9%	C-
64.0% to 69.9%	D+
60.0% to 63.9%	D
Below 60%	F

However, if the class distribution is significantly non-uniform, the class grades may be curved, but only if it improves an individual's letter grade. Shifts in the grading criteria are rare.

Academic dishonesty

The School of Molecular Biosciences does not tolerate Academic Dishonesty (for an overview and appropriate definitions see www.conduct.wsu.edu/default.asp?PageID=343 ; Students are responsible for being familiar with these definitions.). Any student who violates WSU Policies on Academic Integrity will receive a grade of "F" for this course without the option to withdraw, and the WSU Office of Student Conduct will be notified of the infraction. If you have any questions or concerns about these policies, please contact your instructors.

Reasonable accommodations are available for students who have a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Disability Resource Center (DRC). Please notify the instructor during the first week of class of any accommodations needed for the course. Late notification may cause the requested accommodations to be unavailable. All accommodations **MUST** be approved through the DRC

(Admin Annex Bldg, Room 205). Please stop by or call 509-335-3417 to make an appointment with a disability specialist.

Laboratory Assignments
MBIOS 306

1. **ASSIGNMENT CHECK-OFF LIST:** During the first few weeks of this lab section, you will be learning and performing a variety of tasks, often staining bacteria. For each of these 10 tasks, you will need to have your TA sign the task off on your list. Each satisfactory completed task is worth **2 points**. Completion at lower levels will garner 1 or 0 points. If you receive less than 2 points, you may redo the task within the first 3 weeks of class until you receive 2 points. The check-off list will be turned into your TA and is worth **20 total points** (awarded as part of the midterm exam). The task list is your responsibility and you must keep track of completed tasks and corresponding signatures. If you lose the list, you will lose the corresponding points.
2. **GROWTH CURVE GRAPH:** This is a short assignment designed to familiarize students with typical bacterial growth patterns. Graphical representations of data obtained in lab will be made in Microsoft Excel, and you will need to write a brief report (introduction and description, no more than 2 pages) on what the data means and how you gathered it. **10 points total**
3. **TAKE-HOME DILUTION QUIZ:** You will receive a dilutions handout and a dilutions worksheet that your TA will use to help you learn how to calculate and perform dilution problems. Dilutions will be used in the later part of the lab, so make sure you learn this function. Complete the worksheet and know how to do these problems. After the introduction, you will be given a quiz for completion in 48 hrs. This quiz should be completed by individuals, do not work in groups. Dilution problems may be part of lab exams. **20 points total**
4. **HYDROLYSIS REPORT:** This is a short report that students will write to discuss the hydrolysis reactions laboratory exercise. This report will help you employ the format used in the final unknown report. Typical length for this report is 4-8 pages. **20 points total**
5. **MINI UNKNOWN:** A short report based on the lab assignment to identify and isolate five different organisms of either *Staphylococcus* or *Streptococcus*. The methodology learned in this lab may be applied directly to the Unknown Report assignment, and will familiarize you with how to generate a flow chart for isolating bacteria. **10 points total**
6. **WATER TREATMENT PLANT TOUR:** This lab will include a visit to Pullman's Water Treatment Plant to see microbiology in action and gain an appreciation for how microbes perform necessary functions in our present world. **Attendance is mandatory**
7. **UNKNOWN REPORT:** This longer report is worth **100 possible points**, the equivalent of the lab final or a lecture midterm. Your TA will discuss the expectations, but this report should demonstrate your knowledge of diagnostic tests and the principles behind them.

LAB SAFETY

Read, use, and obey the following class rules, procedures, and safety requirements for work in all SMB labs:

- A lab coat is required.
- No food or drink in the laboratory at any time.
- Disinfect all work surfaces at the beginning of class before you begin your work and at the end of the period as you leave.
- Wash your hands after every lab exercise, before leaving the lab.
- Always use a pipetting device, NEVER pipet by mouth.
- Tie any long hair back to avoid accidental ignition by the Bunsen burners.
- Closed-toe shoes must be worn at all times in the laboratory
- Wear provided gloves when working with toxic or carcinogenic chemicals.
- If glass is broken, notify your TA and DO NOT attempt to clean it up.
- Always use caution when working with glass pipets.
- Report all accidents immediately to your TA or Instructor.
- Dispose of contaminated materials in designated biohazard waste containers.
- Dispose of broken glass slides and used cover slips in the designated glass waste container.
- Notify the TA or Instructor of any condition that might compromise your immune status to allow appropriate safety precautions to be taken.

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Sign and return the bottom half of this page to your TA.

I have located the following safety items within the laboratory or in proximity:
Check the boxes as you locate these items.

- Eyewash Station.
- Emergency Shower
- First-aid Kit
- Fire Extinguisher
- Nearest Telephone
- All Exits
- Glass Waste Container
- Biohazard Waste Container
- Fire Blanket

I have read and understand the laboratory class rules, procedures, and safety requirements.

Signature: _____

Printed Name: _____ WSU ID#: _____ Date: _____