MMBB 255 Laboratory Syllabus/Information

Fall 2013 Semester

Teaching Assistants (office hours scheduled as needed):

Instructor: Tim Steffens; tims@uidaho.edu; LSS 168, 885-8953

Section 01 9:30 — 11:20 AM
Jeffrey Dill, dill9983@vandals.uidaho.edu

Section 02 12:30 PM — 2:20 PM
Kami Cole, cole2839@vandals.uidaho.edu

Section 03 3:30 — 5:20 PM
Liz Brandon, bran9316@vandals.uidaho.edu

Learning Outcomes:

This lab course compliments the MMBB 250 lecture material. At the end of the course students will be able to use basic microbiological skills (i.e. streaking for isolation, aseptic technique, microscope use, dilutions, and Gram staining). Students will have the background needed to isolate and identify bacteria. Finally, students will be familiar with basic fermentations, molecular genetics, growth curves, media preparation, antibiotics, bacteriophages, serology, and food quality control.

Requirements:

1. All students must bring a printout of that week's lab procedures to class. The lab manual may be found at BbLearn (https://bblearn.uidaho.edu/). Use a three-ring binder to keep things organized; use tabs to help find things quickly. It is recommended to print out all the material and bring all of it to lab each week. An excellent addendum and helpful purchase (not required) is the "A Photographic Atlas for the Microbiology Laboratory" by Leboffe & Pierce (also available as an eBook, see BbLearn for the link).
2. While in the laboratory all students are required to wear lab coats (or old large shirt) and safety glasses. Lab coats may be bought at chemstores (cheapest) or the bookstore; there are lab coats available to borrow for the semester. **No open toed shoes** (i.e. sandals) allowed in the lab.
3. **Attendance in the laboratory is mandatory**. If more than two labs are missed without being an official excused absence then you will get a zero (F) for your lab grade. Notify your TA or Tim Steffens before class if possible.
4. **A note about time**. Please be aware that since we are working with biological systems we have to schedule our time around the organisms involved in the experiments. You will therefore be expected to come in times other than those scheduled. We will try to keep this to a minimum.
5. **Academic Dishonesty**. Acts of cheating or plagiarism in the MMBB 255 laboratory will result in an automatic zero for that quiz and/or practical exam. Any repetition of this will result in a zero for the laboratory itself. Cheating refers to the acquisition of answers to test (quiz) questions or assigned materials in a dishonest fashion. Plagiarism is defined as 1) the use of another student's writing as your own and/or 2) the use of writing from published sources without citation. Plagiarism includes copying or paraphrasing another's writing with slight changes of wording. Please see UI Faculty-Staff Handbook, Chapter 2 (2300), Article 2 — Academic Honesty for more information.

Grading:

This laboratory will be graded on a straight scale (i.e. ≥90% is an A, ≥80 to 89 is a B, ≥70 to 79 is a C, ≥60 to 69 is a D, and <60 is a F)

Points:

7 Quizzes	30 pts. Each (210 pts.)
2 Practical Exams	100 pts. Each (200 pts.)
Unknown #1	20 pts.
Unknown #2	50 pts.
Unknown #3	120 pts.
Grand Total	600 pts.

General Information:

Microscopes. If your microscope is improperly stored or abused after the second week of lab, you will lose 2 pts. for the first, 5 pts. for the second, and 10 pts. for every following infraction.

Quizzes. Quizzes will be approximately every other Tuesday (except the last one of the semester) and will cover the previous weeks' labs since the last quiz. Make-up quizzes will be allowed only for officially excused absences.

Unknowns. Unknown #1 will test your ability to stain cells, distinguish Gram positive and Gram negative organisms, and describe morphology. Unknown #2 will test your ability to isolate and determine the staining and biochemical properties of the individual organisms. Finally, Unknown #3 will test your ability to isolate and identify a mix of two organisms down to genus and species.

Extra Credit. There may be some extra credit points available on the quizzes and/or practical exams.

Open Labs. There will be an open lab every Friday as needed from 3:00-5:00 PM where you can get help and/or finish things that you were not able to finish earlier in the week.

Schedule of Events

Date	Event	Comments
Tuesday, August 27 **Week 1**	Safety and Microscope Use. Wet Mount and Hanging Drop	Sign the rules if you comprehend them.
Thursday, August 29 **Week 1**	Microscopes, slide prep., simple stain, streak for isolation.	Will assign microscopes. Sign up for Fermentation's. Label your drawers/shelf.
Tuesday, September 3 **Week 2**	Staining: Gram and negative	
Thursday, September 5 **Week 2**	Staining: Acid-Fast; Enrichments: Spore and Myxo.	
Tuesday, September 10 **Week 3**	**Quiz #1; Unknown #1;** Staining: Spore; Enrichments: Spore, Psychrophile, bioremediation	
Thursday, September 12 **Week 3**	Food: root beer, beer, and wine; Finish Unk. #1	
Tuesday, September 17 **Week 4**	Food: Cheese and Yogurt; Prep. Liquid media and diluent	**Unknown #1 due**
Thursday, September 19 **Week 4**	Prep. Agar media; Food: check all, finish yogurt, hang cheese; Inoc. tt.	

Tuesday, September 24 **Week 5**	**Quiz #2**; Finish Root beer and Cheese; Isolation techniques. **Start Unknown #2**	
Thursday, September 26 **Week 5**	Bottle Beer, Quant. Isolation tech.; Growth Curve and spect. work.	
Tuesday, October 1 **Week 6**	Biochemical Tests (including unknown #2)	Come in Wednesday.
Thursday, October 3 **Week 6**	More biochem tests, interpret biochems; **Finish Unk. #2**	
Tuesday, October 8 **Week 7**	**Quiz #3**; Conjugation, Ames, Chromosomal DNA isolation.	**Unknown #2 Due**
Thursday, October 10 **Week 7**	**Lab Practical 1 (weeks 1-6)**	Good Luck! Note the on-line study guide
Tuesday, October 15 **Week 8**	Digesting and Ligating DNA. Ames analyze	
Thursday, October 17 **Week 8**	Transformation, Transposon mutagenesis interpret	Bottle Wine/Taste Beer
Tuesday, October 22 **Week 9**	**Quiz #4**; Isolating plasmid DNA	
Thursday, October 24 **Week 9**	Agarose gel electrophoresis	
Tuesday, October 29 **Week 10**	Human Pathogens: Throat and Skin; **Start Unknown #3**	Need to come in Wednesday.
Thursday, October 31 **Week 10**	Finish Throat and Skin pathogens	Happy Halloween! Daylight Savings Sunday
Tuesday, November 5 **Week 11**	**Quiz #5**; Human Pathogens: Intestinal	Need to come in Wednesday. **Please Vote.**
Thursday, November 7 **Week 11**	Finish Intestinal pathogens	
Tuesday, November 12 **Week 12**	Isolation of Bacteriophages	
Thursday, November 14 **Week 12**	Testing viral specificity	
Tuesday, November 19 **Week 13**	**Quiz #6**; Isolating & testing antibiotic producers; Kirby-Bauer	
Thursday, November 21 **Week 13**	Finish antibiotics and Blood typing (Serology)	
Nov. 25-29 **Fall Break!**	**Fall Recess! No Class!**	**Have a great vacation!**
Tuesday, December 3 **Week 14**	Food Safety: Beef, chicken, and produce	
Thursday, December 5 **Week 14**	**Quiz #7**; Finish food safety	
Tuesday, December 10 **Dead Week**	Check Out, Review	
Thursday, December 12 **Dead Week**	**Practical Exam #2**	**Unknown #3 Due** Good Luck! Note the on-line study guide