

BI 311 MICROBIOLOGY

LAB SYLLABUS

TF: Sarah Oppelt
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Office: 724 LSEB, Tolan lab
Office Hours: 2-3 pm, Mon & Wed

Laboratory Manual: H.J. Benson, Microbiological Applications

Materials needed: Notebook, COLORED PENCILS

Sections: B1: MW 12-2 pm B2: MW 3-5 pm
 B3: TR 9-11 am B4: TR 2-4 pm

Grading Criteria

Lab Notebook (2 NB checks worth 5 pts each)	10 pts
Pop Quizzes (5 quizzes worth 2 pts each)	10 pts
Lab Question Packets	30 pts
1. Techniques (10 pts)	
2. Optimal Growth (10 pts)	
3. Bacteria & You (10 pts)	
Working with an Unknown Bacteria	15 pts
1. Description of Bacteria Colony (10 pts)	
2. Outline of Unknown Bacteria Experiments (5 pts)	
Lab Report	20 pts
1. Rough Draft of Unknown Report (5 pts)	
2. Final Lab Report on Unknown Bacteria (15 pts)	
Lab Practical Exam	15 pts

Lab Polices

Attendance. Attendance is mandatory, and will be taken before every laboratory period. Each student may have ONE excused absence. Due to the nature of the lab, make ups may or may not be possible and will always be at the discretion of the TF. Any conflicts with the dates below should be brought to the TF's attention during the first week of the lab.

Dress. Gloves must be worn at all times and hands washed before and after lab exercises. Lab coats and goggles are optional, but strongly suggested. Cheap paper lab coats are available at the bookstore. No open toed shoes, shorts, or short skirts. Long hair must be tied back.

Other. Some labs require coming in outside of scheduled lab time.

No cell phones during lab. Some labs require longer periods of incubation, but do not require you to check FB. Phones will be confiscated until lab is over, and reoccurring offenses will result in a deduction of points 5 pts off your final grade every.

No food or drinks can be brought into lab. This includes gum, coffee, and water bottles.

Workspaces must be cleaned with 70% EtOH before and after each lab session, and all materials put back in the proper place.

Any injuries, no matter how minor, should be reported to the TF immediately. Any pre-existing health conditions should be reported to the TF where pertinent.

Week	lab A	lab B	notes & articles
week 1 Mon 1/23	Lab 1 a. Intro to lab & focus b. Brightfield Microscopy c. Aseptic Technique d. Difference between microbes: bacteria vs. fungus vs. protists	Lab 2 a. Results – Aseptic Technique b. Enumeration of Bacteria	Intro to lab Techniques packet
week 2 Mon 1/30	Lab 3 a. Results – Enumeration b. Pure Culture (first streak) c. Smear Preparation d. Gram Stain	Lab 4 a. Pure culture (pick a colony) b. Spore Stain c. Acid-fast Stain	Techniques
week 3 Mon 2/06	Lab 5 a. Pure culture (final streak) b. Ubiquity of Bacteria c. Negative Staining d. Motility Determination	Lab 6 a. Results - Ubiquity of Bacteria (focus on colony morphology) – pick one distinct colonies and start pure cultures b. Review of Techniques	Techniques – packet due during Lab 6 Assignment: describe one culture from Ubiquity of Bacteria plate, due lab 9
week 4 Mon 2/13	Lab 7 a. Ubiquity of Bacteria – streak plates to confirm pure culture & inoculate broths to describe optimal growth conditions b. Introduction to Optimal Growth c. Temperature Effects on Growth d. pH and Microbial Growth e. Motility of Ubiquity culture	Lab 8 a. Results – Temp. Effects on Growth b. Results – pH & Microbial Growth c. Results – Motility of Ubiquity culture d. Gram stain of Ubiquity culture	Optimal Growth Assignment: describe one culture from Ubiquity of Bacteria plate, due lab 9
week 5 Mon 2/20	President's Day, no lab	Lab 9 a. Cultivation of Anaerobes b. Water Activity and Osmotic Pressure	Optimal Growth Assignment: describe one culture from Ubiquity of Bacteria plate, due lab 9
week 6 Mon 2/27	Lab 10 a. Results – Cultivation of Anaerobes b. Results – Water Activity & Osmotic Pressure c. How to kill bacteria – Temperature: Lethal Effects	Lab 11 a. Results – Temp: Lethal Effects b. Review of Optimal Growth Conditions	Optimal Growth

Week	Lab A	Lab B	notes & articles
week 7 Mon 3/04	Lab 12 a. How to kill bacteria – UV Light: Lethal Effects	Lab 13 a. Results – UV Light: Lethal Effects b. Intro to Bergey’s Manual c. Assignment – outline for how to identify an unknown bacteria d. Notebook Check	Optimal Growth Packet due during Lab 13
week 8 Mon 3/12	Spring Break, no labs	Spring break, no labs	
week 9 Mon 3/16	Lab 14 a. Pass out unknown cultures b. Gram stain of unknowns c. Optimal Growth conditions of unknowns	Lab 15 a. Results – Unknown characterization b. More staining if needed	Characterization of Unknown
week 10 Mon 3/26	Lab 16 a. Physiological Characteristics: Oxidation & Fermentation (part 1)	Lab 17 a. Results – Physiology: Oxidation & Fermentation b. Physiological Characteristics: Hydrolytic & Degradative Reactions	Physiological Characteristics, Characterization of Unknown – review of results
week 11 Mon 4/2	Lab 18 a. Results – Physiology: Hydrolytic & Degradative Reactions b. Bacterial Examination of Water: Qualitative Tests, #1	Lab 19 a. Bacterial Examination of Water, #2 b. Bacterial Counts of Food	Bacteria & You Assignment: Characterization of Unknown – first draft of report due during Lab 19
week 12 Mon 4/9	Lab 20 a. Bacterial Examination of Water, #3 b. Results – Bacterial Counts of Food c. A Synthetic Epidemic	Lab 21 a. Results – A Synthetic Epidemic b. Evaluation of Alcohol c. Discussion of Lab Report Drafts	Bacteria & You
week 13 Mon 4/16	Patriots Day, no labs	Lab 22 a. Results – Yogurt & Alcohol Production b. Evaluation of Antiseptics c. Antimicrobial Sensitivity Testing	Bacteria & You – Packet due during Lab 22
week 14 Mon 4/23	Lab 23 a. Lab Practical & Notebook Check b. Turn in final report for Characterization of Unknown Bacteria		

