BIOLOGY 349: Principles of Microbiology, Spring 2025
LAB SYLLABUS

Section 04: Thurs 2:00-4:50 pm, ISC 302

Instructor: Betsy Hutchison

Office: ISC 359
Email: 585-245-5038
Office Hours:

Course Description

The structure, cultivation, physiology, ecology, and importance of microorganisms (including bacteria, yeasts, and viruses) are studied. Laboratory activity complements lecture material. Prerequisites: BIOL 222 or BIOL 271.

Required Texts

None, all laboratory materials are available on Brightspace. Students are expected to print our laboratory materials before coming to class, and to check Brightspace for materials.

Grading

Lab Grades	
Unknown Presentation - Group	10%
Group Lab Report (Draft and Final)	7.5%
Short Reports (3 total) - Group	5%
Lab Skills Assessment - Individual	7.5%

Make ups are NOT administered except under special circumstances (such as significant medical or family issues). No other excuses (vacations, weddings, travel, etc) will be accepted.

Attendance. Please note: unexcused absences from lab will result in a 10 pt deduction from your overall BIOL 230 grade. If you have ≥2 unexcused absences, you will get a zero (0) for the lab section of the course.

Grade disputes must be initiated within one week from when the assignment was handed back.

Short Reports

There will be three submissions expected from various labs throughout the semester. These submissions, or short reports, will take on various forms depending on the lab protocol that is followed. More information on these short reports will be covered throughout the semester.

Group Lab Report

As a lab group there you will write a formal lab report on one of the labs during the semester. Both a rough and final draft will be required to be submitted, and this should be properly cited, formatted, and follow standard conventions of lab reports.

Unknown Bacteria Presentation and Biochemical Requests

During the lab portion of the course, you will collect, grow, stain, and identify an environmentally sampled unknown bacteria using various metabolic tests. You will then use Bergey's Manual and sequencing to determine the identity of this bacteria. You will also be given an "unknown patient sample" to identify as well. In order to properly ID these bacteria, you will need to determine the required biochemical tests using the materials given to you by your instructor. These biochemical tests will then be inoculated and read to determine the genus and species of both bacteria. We will then take a lab period in which you will present the identity of your environmental unknown using Powerpoint/Google slides. This presentation will include the logic and tests used to determine the identity of the bacteria, as well as background and important information on your unknown.

Lab Skills Assessment

During Weeks 10-14 a Lab Skills Assessment will be conducted by your instructor. You do not need to turn anything in for this assignment, however you will be observed on various techniques that have been reinforced during the beginning of the semester. This will allow your instructor to assess the skills you have been building through the semester to ensure a sound understanding of Microbiological techniques. The various skills and information will not be disclosed beforehand, but any portion of the laboratory or activities are able to be assessed. During Finals week students will be able to review their Lab Skills Assessment rubric if any questions arise during this process.

Accessibility

SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities, as well as medical conditions related to pregnancy or parenting. Students with letters of accommodation should submit a letter to each faculty member at the

beginning of the semester and discuss specific arrangements. Please contact the Office of Accessibility Services for questions related to access and accommodations: Erwin Hall 22, (585) 245-5112, access@geneseo.edu, www.geneseo.edu/accessibility-office.

Use of AI and writing assignments

Technology changes almost as rapidly as microbes mutate! This is not a bad thing, but it's important to be aware of how it can impact learning, and there are significant potential academic dishonesty issues that can arise. Most of you are likely aware of the wildly popular AI program chatGPT. It's fascinating! However, I strongly recommend ***not*** using it for your coursework for several reasons: (1) if you don't complete assignments yourself, you are not learning. If you're not going to do the work, honestly it's a waste of your time to take this course; (2) chatGPT is not an expert in microbiology, and will likely be prone to errors in writing assignments.

If you do use chatGPT to generate any text you must cite the program in your references or works cited section. Assignments containing text written by chatGPT will not receive full credit compared to assignments that contain original work. Using AI-written work without citing it constitutes an academic dishonesty violation (see section below).

Academic Dishonesty & Plagiarism

Students are expected to adhere to the University's policy on academic dishonesty and plagiarism, located in the student handbook. Academic dishonesty and plagiarism have serious consequences, and if you're struggling in class, please ask for help rather than resort to academic dishonesty! Academic dishonesty will result in a zero on the assignment or exam. In addition, a report will be filed to the department chair and Dean of the College, and a record of academic dishonesty will be placed in the student's file at the Dean of Students Office.

Tentative Schedule (subject to change at instructor's discretion)

It is expected that you check Brightspace at the beginning of each week for lab materials and instructions).

Week **Date**	**Subject**	***Assignments*** Due on Friday of Indicated Week
1 Jan 23	1.1 Check In & Intro 1.2 Aseptic Technique & Transferring Cultures 1.3 Making Media 1.4 Effectiveness of Handwashing	N/A
2 Jan 30	2.1 Streaking Bacteria 2.2 Serial Dilutions 2.3 Introduction to Microscopy 2.4 Simple Staining 2.5: Isolation of Unknown	N/A
3 Feb 6	3.1 Gram Staining	N/A
4 Feb 13	4.1 Bacterial Growth Curve 4.2 PCR	***Short Report 1 Due: Gram Staining (Exp 3.1)***
5 Feb 20	5.1 Gel Electrophoresis 5.2 Epidemiology Lab 5.3 Graph Growth Curve Data	N/A
6 Feb 27	6.1 Kirby Bauer & Chemical Inhibition Tests 6.2 Ames Testing 6.3 Physical Methods of Control (UV and Heat)	***Short Report 2 Due: Growth Curve Graph (Exp 5.3)***
7 Mar 6	7. 1 Collect Environmental Sample 7.2 Biofilm Formation (I) 7.3 Quantifying Microbial Contamination in Water	N/A
8 Mar 13	8.1 4-way Streak of Patient Sample 8.2 Fermentation Experiment 8.3 Biofilm (II)	***Short Report 3 Due: Kirby Bauer and Chemical Inhibition (Exp 6.1)***
9 **Mar 20**	**NO LAB - Spring Break**	N/A
10 Mar 27	10.1 Gram Stain of Unknown & Patient Samples 10. 2 Introduction to Biochemical Tests & Catalase Test	***Biochemical Request List Due BY SUNDAY (Exp 10.2 for Exp 11.1)***
11 Apr 3	11. 1 Inoculation of Biochemical Tests to ID Environmental Unknown and Patient Sample	N/A
12 Apr 10	12.1 Read Biochemical Tests and Identify Environmental Unknown and Patient Sample	***Rough Draft of Bacterial Growth Curve Report Due (Exp 4.1)***

13 Apr 17	13.1 Finish any remaining lab work 13.2 Work on Presentation of Unknown 13.3 Work on Group Lab Report	N/A
14 Apr 24	**NO LAB - GREAT Day**	N/A
15 May 1	**Presentation on Unknown Bacterium**	***Final Bacterial Growth Curve Report Due***