

15-Week BIO 150 Lab – spring 2024

Introductory Microbiology

SCHEDULE

The Biology 150 laboratory schedule is located on the Alexandria Biology Blog Site: <https://blogs.nvcc.edu/albio/>
Please go to the site and download and/or print a copy of the schedule for your section.

ATTENDANCE

Regular attendance to all labs and full participation in **each** lab are mandatory requirements to pass. Please be on time. Attendance will be recorded each lab period. You are responsible for knowing any material covered in the lab whether you were in attendance or not. **Only one laboratory session may be missed without a grade penalty.** Any additional absences should be discussed with the instructor to determine acceptability. Additional unexcused absences will result in a **5% grade reduction** (per missed lab) on the corresponding lab quiz, report, or bacterial unknown summary.

MATERIALS

Course textbook: Microbiology: Basic and Clinical Principles by Lourdes Norman-McKay. Pearson publishing.
To access the Alexandria Campus Bookstore (for textbook), please refer to the following link:
<http://www.nvcc.edu/bookstore/>

Required for lab;

Microbiology Laboratory By McGraw-Hill Education: Edition [Customized for Northern Virginia Community College – Alexandria] (lab) ISBN: 9781307043822 – BOOKSTORE

You will be required to supply all materials necessary for the completion of the course. These items include but are not limited to the following: course textbook, lab manual, *chemical splash & impact resistant goggles**, writing utensils, and face coverings. **Goggles are required for some laboratory exercises*

Required material also may include printouts from the Canvas site for the microbiology laboratory.

COMMUNICATION

Each student is expected to immediately activate his/her official NOVA email account if he/she hasn't done so already. Students must use their NOVA email account, not their personal email account, when communicating with instructors and college personnel. Please refer to the following link for more information:
<http://www.nvcc.edu/ithd/students/email/index.html>.

EMERGENCIES

Emergencies will be announced on NOVA's homepage. You can also receive notification by cell phone or email if you register for NOVA Alert at <https://www.getrave.com/login/nvcc/>.

CANVAS and READING ASSIGNMENTS

Lecture notes, class assignments and important announcements will be available on Canvas. It is the student's responsibility to check the Canvas course site on a regular basis and print out applicable handouts. These documents are beneficial and should be brought to class.

LAB EVALUATION

The **laboratory grade is 30%** of the course grade. Lab quizzes, reports, a bacterial unknown report, and student presentation and report are used to evaluate your progress. **A passing grade (≥ 60) must be received in the laboratory in order to pass the course.**

	Points
Lab Evaluations/Assignments	120
Unknown Bacteria Lab Report	30
Group Project and Presentation	30
Laboratory Midterm	100
Laboratory Final	100
Total Points	380

LAB GRADING SCALE

A = 90%-100%

B = 80% - 89.9%

C = 70% - 79.9%

D = 60% - 69.9%

F = 59% and below

LAB EVALUATIONS (QUIZZES / REPORTS)

Seven evaluations will be given throughout the session and will total **140 points**. Each evaluation will be worth **20 points** and may be a quiz, report, or combination of both. **Your lowest evaluation score will be dropped at the end of the session.**

- *Make-up quizzes or reports will depend on the instructor's discretion.*
- ***Lab quizzes/exams will be administered in person on campus***
- *During lab quizzes/exams, all electronic devices should be turned off and put away.*

BACTERIAL UNKNOWN IDENTIFICATION

Each student is expected to identify a bacterial unknown and submit a typed final report worth **40 points**. More detailed information regarding the procedure and summary will be provided at a later date.

GROUP PROJECT and PRESENTATIONS

During semester, groups with 2-3 students will work together on a project and will be expected to present their project. More detailed information for the project will be made available in another file.

IMPORTANT COURSE DATES

Critical course deadlines (including withdraw dates) can be found at the following website:

<https://www.nvcc.edu/calendars/academic/summer23.html>

EQUIPMENT

All work surfaces must be kept clean and neat. Laboratory equipment and supplies must be properly used and maintained; if this policy is not adhered to, a grade penalty may be imposed. ***This is especially important in the handling and maintaining of microscopes.*** Protective goggles must be purchased and worn for dissection activities.

LABORATORY CONDUCT

Food and beverages are not permitted in the laboratory. Please turn off your cell phones, alarm watches, etc. during the laboratory session. A report of abusive behavior on the part of any student in working with the personnel in the Science Lab may result in the student receiving an "**F**" for the course.

Open toed shoes must not be worn in the laboratory. If the lab you are performing requires goggles, you must wear them. You will be dismissed from the laboratory for that day if you are not obeying the safety rules.

ACADEMIC INTEGRITY

Academic dishonesty will **not** be tolerated. Academic dishonesty includes cheating, plagiarism, and other forms of dishonorable conduct. Cheating includes (but is not limited to) giving, receiving, or soliciting assistance when you are expected to do the work on your own, as well as unauthorized use of notes or other materials during exams. Plagiarism

includes (but is not limited to) copying another classmate's work or published work (word-for-word or in substance) and representing it as one's own work, as well as failing to properly cite any source used to complete assignments.

Consequences of academic dishonesty could include a re-examination on the material, an automatic zero for the assignment, and/or a failing grade for the course at the instructor's discretion. The incident will also be reported to NOVA's Office of Wellness and Mental Health for further disciplinary action. The incident may become part of a student's academic record. All students are expected to be familiar with and abide by NOVA's Academic Integrity Policy which can be found at the following site: www.nvcc.edu/students/handbook/conduct.html

ACADEMIC SUCCESS CENTER AND WRITING ASSISTANCE

The Academic Success Center (ASC) is a student resource center that provides services such as math assistance, peer tutoring, support, and much more. For more information, please see the ASC website (<https://blogs.nvcc.edu/asc/>). The Writing Assistance Center helps students with reading, writing, and critical thinking strategies. For more information, please see their website (<https://blogs.nvcc.edu/asc/writing-center/>).

ACCOMMODATIONS AND ACCESSIBILITY SERVICES

If you have special needs and/or require special accommodations, please make an appointment outside of class time to address them with your instructor at the beginning of the course. Reasonable accommodations will only be made for students who have a verifiable need. If you are seeking accommodations based on a disability, you *must* provide a Memorandum of Accommodation (MOA), which can be obtained from the Office of Accommodations and Accessibility Services (<https://www.nvcc.edu/accommodations/index.html>).

SCHOOL CLOSING AND EMERGENCY AND EVACUATION PLAN

In the event of inclement weather, please check NOVA's homepage for school closing information. If the college is scheduled to re-open at a time when at least 45 minutes of class would remain, you will be required to attend class.

A framed emergency evacuation plan is located near the door to the classroom. This plan describes the evacuation procedures and route that must be followed in case of emergency. If an event occurs that requires evacuation, do not use the elevators, and once outside move at least 300 feet away from the building. Before leaving you should take all personal belongings with you, as time permits, because there is no assurance that you will be allowed to return. Your instructor will assist any individual with mobility disabilities in exiting the building.

COVID-19

Wear a face covering in class is optional

For the latest information and updates, please refer to NOVA's COVID-19 Resources webpage: <https://www.nvcc.edu/safe-campus/index.html>

The Associate Dean of Biology reserves the right to alter this document at his/her discretion during the semester.

MICROBIOLOGY LABORATORY SCHEDULE
 15-Week BIOLOGY 150 – SPRING 2024 - Introductory Microbiology
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Date	LABORATORY TOPIC	LAB EVALUATIONS AND READING ASSIGNMENTS
Feb 1	Lab Policies, Schedule Basic Microbiology Lab Safety Biosafety Levels for Selected Infectious Agent Lab EX: Ubiquity of Microorganism Student Presentation Discussion – Topics, Expectation, Sign-up On own time: Watch Video on Antibiotics – Link on Canvas On own time: Watch the video on microscope and oil immersion	
Feb 8	Data collection – Ubiquity experiment Lab EX: Bright field microscope/Oil Immersion Lab EX: Common Aseptic Technique - Lab EX: Pure Culture Techniques Lab EX: Smear preparation Lab EX: Simple Stains	Submit report on microscopy (10 points)
Feb 15	Lab EX: Negative Stain Lab EX: Gram Stain – Lab EX: Endospore Stain (Lecture only) Lab EX: Acid Fast Stain (Lecture only – prepared slides)	
Feb 22	Lab EX: The Lethal Effects of Ultraviolet Radiation on Microbial Growth Lab EX: Evaluation of Antiseptics and Disinfectants: The Filter Paper Disk Method Lab EX: Antimicrobial Susceptibility Test (Kirby-Bauer Method)	Submit report on Ubiquity experiment (10 points) Quiz on smear preparation / simple stain, negative stain / gram stain (20 points)
Feb 29	Lab EX: The Lethal Effects of Ultraviolet Radiation on Microbial Growth - Reading the result Lab EX: Evaluation of Antiseptics and Disinfectants: The Filter Paper Disk Method - Reading the result Lab EX: Antimicrobial Susceptibility Test (Kirby-Bauer Method) - Reading the result Q&A for midterm exam	Complete Worksheet on UV / Antiseptics / Antimicrobials (20 points)

Mar 7	<p>Midterm Lab Exam (100 points)</p> <p>Assign Activity (Instructor's Choice) – Case Study, Virus Explorer, Biology of SARS-COV-2, or others</p> <p>On own time: Watch video on Helminthes and Protozoa – Link on Canvas</p>	
Mar 14	Spring Break	
Mar 21	<p>Unknown Bacteria Lab: Identification of an Unknown bacteria</p> <p>Lab EX: Morphology– Gram Stain</p> <p>Lab EX: Oxidation-Fermentation Test (PR-Lactose, PR-Glucose, PR-Mannitol)</p> <p>Lab EX: Methyl Red (MR) and Voges-Proskauer (VP) Tests</p> <p>Lab EX: Nitrate Reduction Test</p> <p>Lab EX: Citrate Test</p> <p>Lab EX: Urea Hydrolysis Test</p> <p>Lab EX: Oxidase Test</p> <p>Lab EX: Catalase Test</p> <p>Lab EX: Enterobacteriaceae Identification: The Enteropluri-Test System with Unknown Bacteria</p>	
Mar 28	<p>Lab EX: Identification of Unknown bacteria – Reading the results</p> <p>Lab EX: Enterobacteriaceae Identification: The Enteropluri-Test System with unknown bacteria – reading results</p> <p>Lab EX: Bacteriological Examination of Water: Most Probable Number Determination</p>	Worksheet on Physiological tests (20 points)
Apr 4	<p>Lab EX: Enterobacteriaceae Identification: The Enteropluri-Test System – Reading the result</p> <p>Continue Bacteriological examination of water</p> <p>Lab EX: Bacterial Transformation (pGLO)</p> <p>On own time: Watch the video https://www.biointeractive.org/classroom-resources/immunology-virtual-lab </p>	<p>Unknown Bacteria Lab Report due – 30 points</p> <p>Submit report on Entero-Pluri testing (10 points)</p>
Apr 11	<p>Lab EX: Bacteriological Examination of Water: Most Probable Number Determination – Reading the results</p> <p>Lab EX: Bacterial Transformation (pGLO) – Reading the result</p> <p>Lab EX: ELISA</p>	

Apr 18	Bacteriological examination of water – confirmed results <i>Student presentations</i>	Submit report on Bacteria Transformation (10 points)
Apr 25	<i>Student presentations</i> Lab Final Exam (?)	Submit report on Bacteriological examination of water (10 points) Submit report on ELISA (10 points)
May 2	Lab Final Exam (100 points)	

The Instructor reserves the right to modify this document at her discretion during the session. Students will be notified in a timely fashion if changes are made.