

**NATURAL SCIENCES DEPARTMENT  
HOSTOS COMMUNITY COLLEGE**

**BIO 310/Microbiology**

**Prerequisites: BIO 240 or BIO220**

**Sections: .....Lecture – 3 hrs/3 credits; .....Laboratory- 3 hrs/1 credit**

**Professor:**

**This syllabus covers both lecture and laboratory components of the course.**

Meets:	Lecture: - as per CUNYfirst schedule Laboratory: as per CUNYfirst schedule
Office hours	As per your course syllabus
Office Contact	E-mail: <a href="mailto:-----@hostos.cuny.edu">-----@hostos.cuny.edu</a>
Contact Policy:	<p>All e-mails should have a subject matter <u>and be sent from the Hostos e-mail address</u>. <b>I will not respond to e-mails sent from the non-Hostos address.</b></p> <p>E-mails will be answered within 48 hours or sooner.</p> <p>On-line meetings: If you would like to talk to me privately, send me an e-mail to set up an appointment, and I will open a Zoom link for you</p> <p>All announcements are posted on Blackboard and will be sent to your e-mails from Blackboard.</p> <p><b>Email greeting.</b></p> <p>In your e-mails, please address your instructor as “Professor ....”. . Hi/Hey Prof” greetings are unprofessional and inappropriate.</p>
Minimal technical requirement	<p>To succeed in the on-line course, use of non-mobile device and stable Internet connection is strongly recommended.</p> <p>Information about software requirements is found in the Blackboard support page in the left hand menu</p> <p><a href="https://bbhosted.cuny.edu/webapps/portal/execute/tabs/tabAction?tab_group_id= 14 1">https://bbhosted.cuny.edu/webapps/portal/execute/tabs/tabAction?tab_group_id= 14 1</a></p>

**Course description:**

The student will study and describe terms related to the following aspects of microbiology: history, methods of studying and cultivation, reproduction and growth, metabolism, genetics, and control. The student will also study the following topics: pathogens, resistance and immunity, bacteria, rickettsia, chlamydia, viruses, parasitology, mycology, and epidemiology

**Textbooks:****Lecture**

**Microbiology – An Introduction.**- 13-th edition Tortora, G.J., Funke, B.R., Case, C.L.  
 Publisher: Pearson Biology ISBN – 9780134707310.

**The recommended version:** The digital textbook (e-text) with the Mastering Microbiology component can be purchased through Pearson <https://www.pearson.com/us/higher-education/product/Tortora-Modified-Mastering-Microbiology-with-Pearson-e-Text-Standalone-Access-Card-for-Microbiology-An-Introduction-13th-Edition/9780134707310.html> Biology ISBN – 9780134707310.

You can also buy an access through Hostos bookstore or through the Mastering site [https://login.pearson.com/v1/piapi/piui/signin?client\\_id=6Q7INcg9CxMhKqXBPUidpp7BVrBjMFzI&okurl=https:%2F%2Fwww.masteringmicrobiology.com%2Flogin&siteid=11431&regurl=https:%2F%2Fwww.pearsonmylabandmastering.com%2Fnorthamerica%2Fmasteringmicrobiology%2F](https://login.pearson.com/v1/piapi/piui/signin?client_id=6Q7INcg9CxMhKqXBPUidpp7BVrBjMFzI&okurl=https:%2F%2Fwww.masteringmicrobiology.com%2Flogin&siteid=11431&regurl=https:%2F%2Fwww.pearsonmylabandmastering.com%2Fnorthamerica%2Fmasteringmicrobiology%2F)

**Laboratory**

Per your section syllabus.

**Course objectives:**

By the end of the course, students will be able to:

1. Describe bacterial structure / anatomical features of microorganisms and explain the metabolic and genetic processes of bacterial microorganisms.
2. Describe the basic principles regarding how the human immune system responds to the presence of microbial organisms and outline the many ways microorganisms can associate with human beings
3. Describe the ways human beings can control microbial growth based on our understanding of the way microorganisms interact in the environment  
*Objectives 1-3 will be demonstrated by student performance on exams and essays writing*
4. Apply standard microbial methods used to characterize, identify and control microbial growth.  
*Objective 4 will be demonstrated by student lab work and completed lab reports*
5. Develop critical thinking skills, interpret scientific observations and delineate conclusions through application of theoretical knowledge gained in the course, materials collected in the library and the internet and implementation of laboratory experience  
*Objective 5 will be demonstrated by exam performance, lab performance, completed lab reports, writing critical analysis essays.*
6. Develop writing and oral communication skills as well as skills in comprehending graph/charts.  
*Writing critical analysis essays, writing lab reports, class participation, participation in relevant department activities, will demonstrate objective 6.*

**Pathways Learning Outcomes (PLOs)**  
**Scientific World bucket, Microbiology course.**

**PLO-1**

Gather, interpret, and assess information from a variety of sources and points of view.

**Assessments:**

Students will gather information for the laboratory report and the term paper from the literature the laboratory experience, and the personal experience.

**PLO-2**

Evaluate evidence and arguments critically or analytically.

**Assessments:**

Students will evaluate information gathered during laboratory experience in light of the theoretical knowledge they acquired in the lecture part of the course.

**PLO-3**

Produce well-reasoned written or oral arguments using evidence to support conclusions.

**Assessments:**

In conclusion section of the laboratory report, student will explain their reasoning for a particular conclusion they have produced in the lab report.

**PLO-4**

Demonstrate how tools of science, mathematics, technology, or formal analysis can be used to analyze problems and develop solutions.

**Assessments:**

Students will use mathematic reasoning to conduct some of the laboratory exercises and draw conclusions from them, acquire and demonstrate skills in using the microscope and other common techniques commonly used in Microbiology.

**PLO-5**

Articulate and evaluate the empirical evidence supporting a scientific or formal theory.

**Assessments:**

Students will evaluate and articulate empirical evidence supporting the theory of biogenesis through short exam essays (Lecture exam 1).

**PLO-6**

Articulate and evaluate the impact of technologies and scientific discoveries on the contemporary world, such as issues of personal privacy, security, or ethical responsibilities.

**Assessments:**

Students will evaluate and articulate current understanding of how infectious diseases spread versus the practice of tracing COVID19 contacts during pandemic. The assessment will include short exam essays (Lecture exam 3) and class presentations.

**PLO-7**

Understand the scientific principles underlying matters of policy or public concern in which science plays a role.

**Assessments:**

Students will explain the scientific principles that lead to the institution of vaccination mandate for school attendance, including the current requirements for COVID19 vaccination for businesses and schools. The assessment will include short exam essays (Lecture exam 4) and class presentations.

**Microbiology course particulars.**

**Graded assignments:**

The Final grade will be determined by the grades on lecture and laboratory combined as follows:

**GRADE COMPONENTS**

**CUNY LETER GRADES**

**Graded assignments:**

The Final grade will be determined by the grades on lecture and laboratory combined as follows:

<b>Lecture</b>	<b>65%</b>
4 -5 Exams (average, including the final exam)	55%
Writing Assignments (average)	10%
<b>Laboratory</b>	<b>25%</b>
8-11 Lab Reports (average)	15%
3 Examinations (average)	10%
<b>Mastering Biology</b>	<b>10%</b>
<b>Total Grade Course</b>	<b>100%</b>

Grade	Percentage	GPA Value
A	93 – 100%	4
A-	90 – 92%	3.7
B+	87 – 89%	3.3
B	83 – 86%	3
B-	80 – 82%	2.7
C+	77 – 79%	2.3
C	70 - 76%	2
D	60 - 69%	1
F	below 60%	0

No student under any circumstances will be given a passing grade in this Biology course without taking and passing the laboratory course.

**Incomplete Grade (INC)-** The grade of Incomplete (INC) is given in regular courses upon request of the student for personal emergencies that are verifiable. The faculty member has the responsibility to provide INC grade only to those students **who are passing the course**. The student has the responsibility to take the initiative in completing the work, and is expected to make up the incomplete work during the first semester in residence after receiving the grade of Incomplete. If the student does not make up the incomplete during the following semester after receiving it, **the faculty member may give an F grade without further consultation with the student**. If after the end of the first semester the INC remains on the record it will be designated as an F and will be computed in the student's GPA. There is no R grade in this course. Additional information on the college grade policy can be obtained at <http://www.hostos.cuny.edu/Administrative-Offices/Office-of-the-Registrar/Academic-Info/Grades-Policy>.

**WU Grade** – Given for non-attendance. This grade is included in the computation of the GPA and counts as a failure (F). It is a punitive grade, you may be responsible for a part or a whole of your tuition fee.

In an on-line environment, “non-attendance” means failure to submit Mastering and laboratory reports assignments late or not at all.

**Attendance** In an on-line environment, participation is considered an evidence of attendance (see below). Students are expected to attend both lectures and laboratory meeting in the course. Classes begin at the times indicated in the official schedule of classes. Arrival in class after the scheduled starting time constitutes lateness. Absences due to late registration, change of program, or other extenuating circumstances will be considered on an individual basis. The maximum number of absences is limited to three (3) class meetings in either a lecture or laboratory class. Any students missing four (4) classes of either lecture or laboratory will receive an F grade. Any student who stopped attending classes without officially withdrawing from the course will receive a WU grade.

**Evidence of participation:** answering questions during the lecture class, submission of Mastering Microbiology assignments, laboratory assignments and laboratory reports on time.

**Cell Phone/Electronic devices Policy** - This policy does not apply to on-line class.

No cell phone calls are allowed in the class. If you expect an important call, place your cell phone on vibrate. Use of electronic devices in classroom is not allowed unless specifically requested by the instructor. Your cell phone, tablet, smart watch or any other electronic device should be stored in your book bag during examination. Presence of any of these devices out of the book bag during an exam will be considered cheating and treated accordingly.

**Contact Policy-** Students are strongly encouraged to use their Hostos e-mail addresses. If you would like to contact your professor, do not use Succeed at Hostos links, contact your professor directly via Hostos email.

### **Examinations**

Examination schedule is given in the *Class Schedule* section of this syllabus and will be followed as closely as circumstances allow. If you missed distribution of the graded exam/paper, you may see results of your test in the instructor's office during the office hours.

### **Make-up exams**

Make-up exams are administered to students who have missed a scheduled examination and have a valid excuse for their absence. All make-up exams will be given on an out-of class time, by appointment only, and only in the period preceding the next scheduled examination.

There is no make-up exams in on-line class. If your exam was interrupted by unsteady Internet connections, please let me know right away. You will be allowed to re-take the exam if you were able to complete no more than 15% of the exam before the interruption.

**Extra credits.**

Extra credits will be addressed your section syllabus.

**Assignments.**

Assignment will be described your section syllabus.

**Absolutely no submissions will be accepted after the last day of class (per your schedule)**

**Conflict resolution**

If you have any issues with the course, your classmates, or your instructor, talk to your instructor first. Do not wait till the issue escalates to the size of a problem preventing you from successfully completing the course.

**General College Policies/Excerpts from Hosts College catalog:****Academic integrity:**

Hostos Community College believes that developing student's abilities to think through issues and problems by themselves is central to the educational process. Since the Hostos College degree signifies that the student knows the material s/he has studied, and the practice of academic dishonesty results in grades or scores that do not reflect how much or how well the student has learned, understood, or mastered the material, the College will investigate any form of academic dishonesty brought to its attention. If the charge of academic dishonesty is proved, the College will impose sanctions. The three most common forms of academic dishonesty are cheating, plagiarism, and bribery.

In the collegiate setting, cheating is defined as the purposeful misrepresentation of another's work as one's own. Faculty and students alike are responsible for upholding the integrity of this institution by not participating either directly or indirectly in act of cheating and by discouraging others from doing so. Plagiarism is a form of cheating which occurs when persons, even if unintentionally, fail to acknowledge appropriately the sources for the ideas, language, concepts, inventions, etc. referred to in their own work. Thus, any attempt to claim another's intellectual or artistic work as one's own constitutes an act of plagiarism. In the collegiate setting, bribery involves the offering, promising, or giving of items of value, such as money or gifts, to a person in a position of authority, such as a teacher, administrator, or staff member, so as to influence his/her judgment or conduct in favor of the student. The offering of sexual favors in exchange for a grade, test score, or other academic favor, shall be considered attempted bribery. The matter of sexual favors, either requested or offered, in exchange for a grade, test score or other academic favor, shall also be handled as per the Sexual Harassment procedures of the College.

***If you are suspected of plagiarism or cheating or if you attempt to bribe or influence your professor, you will be immediately reported to the college's Academic Integrity Officer. You will be unable to drop the class. The penalties range from an F with a score of 0 for an assignment to Failure for the entire term to expulsion from The City University of New York.***

**Bribery:**

In the collegiate setting, bribery involves the offering, promising, or giving of items of value, such as money or gifts, to a person in a position of authority, such as a teacher, administrator, or staff member, so as to influence his/her judgment or conduct in favor of the student. The offering of sexual favors in exchange for a grade, test score, or other academic favor, shall be considered attempted bribery. The matter of sexual

favors, either requested or offered, in exchange for a grade, test score or other academic favor, shall also be handled as per the Sexual Harassment procedures of the College.

This class uses Turnitin.com to verify assignment originality. The minimum penalty in this class for plagiarism or cheating is a failing grade for the assignment in question. Students cannot rewrite papers failed for plagiarism or cheating.

**College attendance policy:** *(Reproduced from pages 158-162 of the 2006/2007 Catalogue).*

Students are expected to attend all class meeting in the courses for which they are registered. Classes begin at the times indicated in the official schedule of classes. Arrival in class after the scheduled starting time constitutes lateness.

The maximum number of absences is limited to 15% of the number of scheduled class hours per semester and a student absent more than the indicated 15% is deemed excessively absent. Attendance is monitored from the first official day of classes. In the case of excessive absences or lateness, the instructor has the right to lower the grade, assign a failing grade, or assign additional written work or readings.

Absences due to late registration, the instructor will consider change of program, or extenuating circumstances on an individual basis. Each department and program may specify in writing a different attendance policy. Instructors are required to keep an official record of student attendance and inform each class of the College's or department attendance policy.

In this class, exceeding 5 unexcused absences will result in failure of the course.

**Students with disabilities:**

(Excerpt from the Hostos Community College Catalog)

The Americans with Disabilities Act prohibits discrimination based on disability and requires the College to be physically and programmatically accessible. Beyond the basic requirements of the ADA, Section 504 of the Rehabilitation Act and New York State and New York City statutes, the College has created an office that provides services intended to help each student with a disability maximize his or her potential for success. Based on an intake interview and documentation provided by a student, a variety of accommodations may be provided to assist qualified students to attain their academic objectives. Intake and counseling are provided in English and Spanish.

If any student has a disability that requires course accommodations, please contact your professor via Hostos email or in person as soon as possible to discuss your situation. If you have not already done so, you should register with the college's office of Services for Students with Disabilities located in the Savoy building in Room D101P; telephone: 718-518-4454. The office will assess your eligibility for services and / or accommodations and will work with you to plan and implement appropriate accommodations to assist you to complete requirements for this and other courses. SSWD website is <http://www.hostos.cuny.edu/sswd/>

**NEED HELP?**

**Services for Students with Disabilities**

Location: 120 E. 149th Street (Walton Avenue), Rm. D-101L

Contact info: (718) 518-4454 (voice/TTY): e-mail: [sswd@hostos.cuny.edu](mailto:sswd@hostos.cuny.edu).

**For more information go to** <http://www.hostos.cuny.edu/>

**Hostos Academic Learning Center (HALC):** <http://www.hostos.cuny.edu/asc/>

Current schedule of tutorials and workshops is found on HALC website.

**Counseling Center.**

Counseling center is a great resource for ALL students: time saving techniques, stress reduction, study skills, personal problems, and much, much more The Counseling Center provides ongoing personal and

academic counseling for students on an individual and group basis.  
 Location: 450 Grand Concourse, Rm. C330  
 tel. (718) 518-4319 [infocounseling@hostos.cuny.edu](mailto:infocounseling@hostos.cuny.edu)

### Course schedule:

This is a generalized schedule of classes. More detailed class schedule and assignments will be found in your section syllabus.

<b>Week Date</b>	<b>Lecture or Lab class</b>	<b>Chapter/Topic</b>	<b>Reading before class</b>	<b>Homework assignment</b>
1	Lecture	<b>Ch. 1: Microbial World and You</b>	<b>Ch. 1</b>	
1	Lab	Introduction to microbiology laboratory. Aseptic techniques: Isolation of pure culture.		
2	Lecture	<b>Ch. 2: Chemical Principals</b>	<b>Ch. 2,</b>	
2	Lab	Introduction to light microscope Observing Microorganisms Through a Microscope Simple Stains	Tortora Ch. 3	
3	Lecture	<b>Lecture exam 1 (Ch. 1 and 2) Chapter 4 Functional Anatomy of Prokaryotic and Eukaryotic cells</b>	<b>Ch. 4</b>	
3	Lab	Gram Stain and its relationship to bacterial cell anatomy		
4	Lecture	<b>Ch. 5: Microbial Metabolism</b>	<b>Ch. 5</b>	
4	Lab	Acid-Fast Stain and its relationship to bacterial cell anatomy		
5	Lecture	<b>Ch. 5: Microbial Metabolism (continued) Ch. 6: Microbial Growth</b>	<b>Ch. 6 Microbial Growth</b>	
5	Lab	Endospore Stain and its relationship to bacterial cell anatomy and physiology		

<b>6</b>	<b>Lecture</b>	<b>Lecture Exam 2 (Ch. 4, 5, 6) Ch. 7: Control of Microbial Growth</b>	<b>Ch. 7</b>	
6	Lab	Negative Stain Catalase test Review of staining tests.		
<b>7</b>	<b>Lecture</b>	<b>Microbial Genetics 1</b>	<b>Ch. 8</b>	
7	Lab	Lab Exam 1 Fermentation Test; Oxidation-Fermentation Test.		
<b>8</b>	<b>Lecture</b>	<b>Microbial genetics II Investigative report draft submission</b>	<b>Ch. 8</b>	
8	Lab 8	Selective Media and Differential Media: MacConkey Agar; Mannitol Salt Agar (MSA).		
<b>9</b>	<b>Lecture</b>	<b>Lecture Exam 3 (Ch. 7, 8) Ch. 14 Principles of Disease and Epidemiology</b>	<b>Ch. 14</b>	
9	Lab	Combination Differential Media: TSI and SIM Medium		
<b>10</b>	<b>Lecture</b>	<b>Chapter 13: Viruses</b>	<b>Ch. 13</b>	
10	Lab	Extracellular metabolism: Starch Agar; Milk (Casein) Agar; Blood Agar		
<b>11</b>	<b>Lecture</b>	<b>Ch. 15 Microbial Mechanism of Pathogenicity</b>	<b>Ch. 15</b>	
11	Lab	Plaques assay		
<b>12</b>	<b>Lecture</b>	<b>Lecture exam 4 (Ch. 13, 14, 15)</b>	<b>Ch. 16</b>	



		<b>Ch. 16: Innate Immunity: Nonspecific Defenses of Host</b>		
12	Lab	Lab Exam 2 Antimicrobial Susceptibility Test	Blackboard files	
<b>13</b>	<b>Lecture</b>	<b>Ch. 16: Innate Immunity: Nonspecific Defenses of Host</b>	<b>Ch. 16</b>	
13	Lab	Observation of Eukaryotic microorganisms	Blackboard files	
<b>14</b>	<b>Lecture</b>	<b>Ch. 20: Antimicrobial Drugs</b> <b>Last Lecture meeting</b>	<b>Ch. 20</b>	
14	Lab	All unfinished business, Laboratory course review <b>Last Laboratory meeting</b>		
<b>15</b>	<b>Lecture</b>	<b>Final Examination,</b>		
<b>15</b>	<b>Lab</b>	<b>Final Examination</b>		

### Specific Microbiology Laboratory requirements.

Microbiology course includes an extensive laboratory component. Students are strongly encouraged to attend all laboratory sessions, as there are no make-ups for the missed laboratory exercises. Missing a laboratory class does not relieve you from the responsibility of learning class material or submitting the laboratory report for the missed exercise.

**In person laboratory classes:** students attending laboratory are required to wear protective clothing (lab coats/jackets). Students without protective clothing will be allowed to observe laboratory exercise only, but they will not be allowed to participate in exercises that involve handling live microorganisms.

While in laboratory class, students are expected to follow Biology Laboratory rules.