This syllabus is provided as a general informational guide. Some of the information may vary depending on the specific course section and instructor. Different sections of the same course may require different textbooks. Verify the section specific textbook information in the CUNY's Academic Course Schedule Web Page. Modifications of the grading system presented here will be communicated by the instructors of the sections when they meet the class.

BOROUGH OF MANHATTAN COMMUNITY COLLEGE
The City University of New York
Department of Science

MICROBIOLOGY BIO420 **Class Hours:** 6

Lecture Hours per Week: 3 **Laboratory Hours per Week:** 3

Semester: Spring 2019

Instructor Information (Phone#, Office#, email)

Credits: 4

Course Description: BIO420 is an introductory microbiology class that covers the essentials of microbiology, interactions between microbes and the human host, and microbes and important human diseases. The course surveys microorganisms pathogenic to humans: their characteristics, pathogenicity and modes of transmission are studied. Laboratory instruction includes a study of the sterile technique and the culturing, staining and handling of bacteria.

Prerequisites/ Corequisites: BIO 426 and CHE 118 or CHE 121, or departmental approval

Course Student Learning Outcomes	Measurements
1. Students will be able to describe the characteristics of bacteria, viruses, prions and fungi.	**1.** Quizzes and examinations. Students will be assessed on their ability to differentiate between these organisms both structurally and functionally.
2. Students will be able to describe: DNA replication; protein synthesis; gene expression and mutation; genetic mechanisms of drug resistance.	**2.** Quizzes and examinations. In particular, students' understanding of different types of mutations and the ways in which drug resistance arises will be assessed.
3. Students will be able to describe the mechanisms of host resistance and immunity.	**3.** Quizzes and examinations. Questions on the exam will assess students' understanding of the interactions between different aspects of innate and adaptive immunity.
4. Students will be able to identify the major bacterial, viral and fungal pathogens and understand the interaction between host & pathogen.	**4.** Quizzes and examinations. Questions on the exam will include case-study approaches to assess students' understanding of how important diseases are transmitted, the pathology of the diseases, and treatment of the diseases.
5. Students will be able to culture, stain, and handle bacteria with emphasis on safety and sterile technique.	**5.** Written laboratory reports and assignments. Improvements in clarity and organization of reports will be monitored. Students will also be given a practical exam in which they will be asked to (i) identify different staining techniques, (ii) describe techniques used for obtaining a pure cultures and (iii) understand the Kirby-Bauer method used for determining antibiotic sensitivity.

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Below are the college's general education learning outcomes, the outcomes that are checked in the left-hand column indicate goals that will be covered and assessed in this course. (Check at least one.)

	General Education Learning Outcomes	**Measurements (means of assessment for general education goals listed in first column)**
☐	**Scientific Reasoning** - students will be able to apply the concepts and methods of the natural sciences.	Students will assimilate class and laboratory information in order to answer questions related to biology orally and in written form.

Required Lecture Text:
Title: Nester's Microbiology: A Human Perspective
Authors: Anderson, Salm and Allen
Publisher: McGraw-Hill Publishing
Edition: 9th Edition, 2018
ISBN #: 9781307234183

Lecture Text buying options:

1. Direct from McGraw-Hill via Connect website (**See page 6 for instructions on how to purchase via Connect website)**:
   a. Text book with Connect access- $106 net
   b. Connect only - $91.50

   OR

2. BMCC Bookstore:
   a. Loose leaf version of book with ConnectPlus (online material with eText and SmartBook) - $141.35

Required Laboratory Text:
Title: Microbiology: A Laboratory Manual (BMCC customized)
Author: Benavides, Salm, Thompson, Zaitsev
Publisher: Morton Publishing
Edition: 1e, 2016
ISBN #: 978-1-61731-845-0

Laboratory Manual buying options:

1. Only available at BMCC bookstore - $40.35

Use of Technology: Blackboard

Evaluation and Requirements of Students:

TO PASS THIS CLASS, A STUDENT MUST HAVE A PASSING GRADE OF 60% OR MORE IN LECTURE AND A PASSING GRADE OF 60% OR MORE IN THE LABORATORY PORTION.

BMCC is committed to the health and well-being of all students. It is common for everyone to seek assistance at some point in their life, and there are free and confidential services on campus that can help.

Single Stop www.bmcc.cuny.edu/singlestop, room S230, 212-220-8195. If you are having problems with food or housing insecurity, finances, health insurance or anything else that might get in the way of your studies at BMCC, come by the Single Stop Office for advice and assistance. Assistance is also available through the Office of Student Affairs, S350, 212-220- 8130.

Counseling Center www.bmcc.cuny.edu/counseling, room S343, 212-220-8140. Counselors assist students in addressing psychological and adjustment issues (i.e., depression, anxiety, and relationships) and can help with stress, time management and more. Counselors are available for walk-in visits.

Office of Compliance and Diversity www.bmcc cuny.edu/aac, room S701, 212-220-1236. BMCC is committed to promoting a diverse and inclusive learning environment free of unlawful discrimination/harassment, including sexual harassment, where all students are treated fairly. For information about BMCC's policies and resources, or to request additional assistance in this area, please visit or call the office, or email olevy@bmcc.cuny.edu, or twade@bmcc.cuny.edu. If you need immediate assistance, please contact BMCC Public safety at 212-220-8080.

Office of Accessibility www.bmcc.cuny.edu/accessibility, room N360 (accessible entrance: 77 Harrison Street), 212-220-8180. This office collaborates with students who have documented disabilities, to coordinate support services, reasonable accommodations, and programs that enable equal access to education and college life. To request an accommodation due to a documented disability, please visit or call the office.

College Attendance Policy

At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For example, you may be enrolled in a three-hour class. In that class, you would be allowed 4 hours of absence (not 4 days). In the case of excessive absences, the instructor has the option to lower the grade or assign an F or WU grade.

BMCC Policy on Plagiarism and Academic Integrity Statement

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's Web site, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).

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LECTURE

WEEK	TOPIC	PAGES IN TEXT BOOK
1	Humans and the microbial world Prokaryote cell structure	Chapter 1: 1-18 Chapter 3: 44-56*** (microscopy techniques) Chapter 3: 57-77 (prokaryote cell structure) *** Optional pages – these may be covered in lab session by your instructor
2	Microbial growth Control of Microbial growth	Chapter 4: 92-109 (microbial growth) Chapter 4: 110-115*** (methods to detect growth) Chapter 5: 119-138 (control of growth) *** These pages may be covered in lab session by your instructor
3	Microbial metabolism	Chapter 6: 139-177
4	The blueprint of life: DNA to protein	Chapter 7: 178-205
5	Bacterial genetics	Chapter 8: 206-235 Chapter 9: 236-258*** (Biotechnology) *** Optional pages – your instructor may or may not cover this section
6	Viruses, viroids and prions	Chapter 13: 332-360
7	Innate immune response	Chapter 14: 362-385
8	Adaptive immune response	Chapter 15: 386-414
9	Host-microbe interactions Immunologic disorders	Chapter 16: 415-438 Chapter 17: 439-455
10	Applications of immune responses Epidemiology	Chapter 18: 456-463 (immunization) Chapter 18: 464-476*** (immunologic testing) Chapter 19: 477-499 *** Your instructor will indicate what he/she plans to cover in these pages
11	Antimicrobial medications Respiratory infections	Chapter 20: 500-530 Chapter 21: 531-573 * Your instructor will indicate which diseases are to be covered
12	Skin infections Wound infections	Chapter 22: 574-600 Chapter 23: 601-622 * Your instructor will indicate which diseases are to be covered
13	Digestive system infections Blood and lymphatic infections	Chapter 24: 623-663 Chapter 25: 664-693 * Your instructor will indicate which diseases are to be covered
14	Nervous system infections Genitourinary infections	Chapter 26: 694-727 Chapter 27: 728-766 * Your instructor will indicate which diseases are to be covered
15	Final Exam	

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LABORATORY

WEEK	TOPIC
1	Lab safety; Comparing hand-cleaning agents (Lab Manual Sections 1 & 2)
2	Using a Compound Microscope; Simple Stain (Lab Manual Sections 3 & 4)
3	Gram stain, Negative stain (Lab Manual Sections 5 & 6)
4	Acid fast stain, endospore stain, exposure plate (Lab Manual Sections 7, 8 & 9)
5	Colony morphology (using exposure plate), Staining an Unknown (Lab Manual Section 9)
6	Separating a mixture (obtaining pure culture), Effect of temperature on microbial growth (Lab Manual Sections 10 & 11)
7	Effect of UV on microbial growth; disc diffusion assay (Lab Manual Sections 12 & 17)
8	Water testing I – Selective and Differential tests (Lab Manual Section 13)
9	Water testing II – commercial kits (Lab Manual Section 14)
10	Direct counting (Lab Manual Section 15)
11	Turbidity assay (Lab Manual Section 16)
12	DNA gel electrophoresis (Lab Manual Section 18)
13	Protozoa (Lab Manual Section 19)
14	Final Exam

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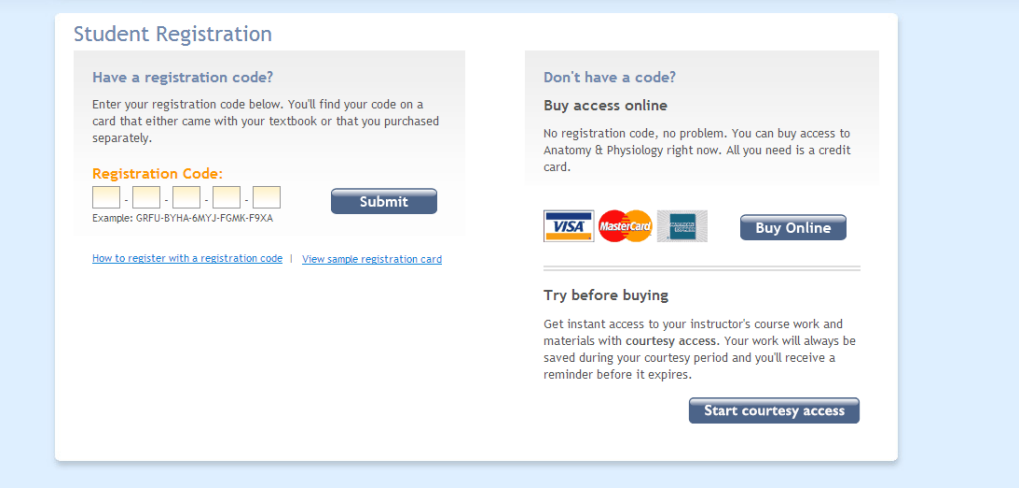
STUDENT REGISTRATION/PURCHASING INSTRUCTIONS

1. Go to your professor's section web address (provided by your specific professor)
2. Click the "Register Now" Button.
3. Select "Buy Online" or enter code from the bookstore package.

   ➢ NOTE: Connect comes with the full ebook. After enrollment in your Connect section, you will have the option to purchase the full, loose leaf version of the print text.



•For technical issues with registration, call **800-331-5094** or go to Help