



COURSE NUMBER AND TITLE: NR.110.203 Microbiology with Lab

CREDITS: 4 Credits

PRE- AND COREQUISITES: None

COURSE DESCRIPTION:

Introduces the core concepts and basic principles in microbiology, examining microorganisms and how they interact with humans and the environment. Information regarding classification of microorganisms, characteristics of different cell types and processes critical for cell survival is presented. Topics such as bacterial metabolism, microbial nutrition, genetics, anti-microbial approaches and interaction of pathogenic bacteria with humans are discussed. The course includes a virtual laboratory component designed to complement lecture topics. The course content provides the foundation of general microbiology necessary for students who are interested in applying to health profession programs.

OBJECTIVES:

Upon completion of the course, the student should be able to:

1. Describe and differentiate among the broad classes of microorganisms, including bacteria, protozoa, fungi, helminthes, and viruses.
2. Describe in appropriate terminology the structure, function and characteristics of prokaryotes, eukaryotes and viruses.
3. Explain the metabolic processes necessary for microbe survival, focusing on the different methods of energy acquisition.
4. Describe ways microbes can cause infection and pathology in humans and apply this understanding to infection prevention and control in healthcare settings.
5. Identify strategies employed by antimicrobial drugs and how they specifically target certain pathogens and apply this understanding to antimicrobial treatment, drug resistance and interaction with host.
6. Demonstrate knowledge and skills in common laboratory procedures.

HOW WE WILL WORK TOGETHER:

Students will use their personal computer, text, lab website and the course site on Blackboard. This course will assess your knowledge of the materials using online lectures, lab sessions, lab assignments, discussions, quizzes and exams.

TECHNICAL SUPPORT:

For issues related to Blackboard login and access, contact SON Help Desk at 410-614-8800 or email son-helpdesk@jhu.edu

For Late Nite Labs login and access issues, call Late Nite Labs Student Support at 800-262-0518 or email support@latenitelabs.com

For McGraw-Hill Connect login and access problems, call Connect Customer Support at 800-331-5094 or go to www.mcgrawhillconnect.com/support to report an issue.

For any other issues with course materials, you will find detailed contact information for the instructor, the teaching assistant and others under **Contact Information** section of the Blackboard site. You can also post a thread under the General Discussion Forum. We will get back to you as soon as we can.

SUMMARY OF OPPORTUNITIES TO DEMONSTRATE LEARNING:

The following activities will be evaluated in this course. Corresponding point values and weights are provided. Specific details regarding assignments are provided in the course schedule and on the Blackboard course site.

OPPORTUNITIES TO DEMONSTRATE LEARNING	COURSE OBJECTIVES ADDRESSED	VALUE
Module Graded Quizzes	1, 2, 3, 4, 5, 6	150pts (20%)
Completion of Lab Sessions and Lab Assignments	1, 2, 3, 4, 5, 6	140pts (30%)
Discussion Boards	1, 2, 3, 4, 5, 6	100pts (10%)
Midterm Exam	1, 2, 3, 4, 5, 6	100pts (20%)
Final Exam	1, 2, 3, 4, 5, 6	100pts (20%)
Total		590pts (100%)

OPPORTUNITIES TO DEMONSTRATE LEARNING:

- *Graded Module Quizzes*: These are timed quizzes that are designed to test your mastery of the material covered in each module and keep you on track in your reading. The quizzes are open book and open notes. One attempt is allowed for each quiz. There are 10 graded quizzes in total in this course. You will find these quizzes under the “Assessment” section of each module.
- *Lab Sessions*: Laboratory sessions are held at the Late Nite Labs (LNL) website at <http://latenitelabs.com/> . You are required to complete the lab procedures and a lab assignment for each lab. There are eight labs in total. The maximum point possible for each lab session is 20 points, with 5 points for the completion of lab procedures required for the lab session and 15 points for the assignment accompanying the lab. If you miss a lab session, you will receive 0 for the lab component of that module. The lowest grade you receive for the eight labs will be dropped. There are no makeup labs. **An average of 60% must be achieved in the lab component of the course in order to for you to pass the course.** Links to lab activities are provided under the “Lab” section of each module. Grades for lab activities will be imported from Late Nite Labs to Blackboard Gradebook on a bi-weekly basis.
- *Discussion Boards*: Weekly discussions can be accessed from “Discussion Board” link on the left-side menu of the course site, or from within each module. There are 10 discussion boards in this course. Additionally, there is an optional discussion board for lab sessions.
- *Exams*: Comprehensive exams consisting of multiple choice questions will be given to assess student understanding of course content. They are open book, open notes and timed. Only one attempt is allowed for each exam. There are no makeup exams.

Note: You will be able to access the supplemental learning activities discussed below only if you have purchased access to McGraw-Hill Connect.

Throughout the course, you will find *Knowledge Check* activities after each recorded lecture and *Practice quizzes* under the “Optional Learning Activities” section in each module. In addition, *SmartBook* readings are also available if you prefer to read the textbook online. The Knowledge Check, Practice quizzes and SmartBook reading assignments provide self-assessment of the information presented in the lectures and the textbook and are not graded or counted towards your final course grade.

LATE ASSIGNMENT POLICY:

All course assignments listed in the syllabus must be turned in by the specified due date and time. Once the due date and time have passed, 10% of the total points you have

earned on the assignment will be deducted per day (per 24 hour period). There are no makeup or extra credit assignments allowed. Please contact the course instructor prior to the due date in the case of extenuating circumstances.

GRADING SCALE:

RANGE	LETTER GRADE	GRADE POINT
97 – 100	A+	4.0
93 – 96	A	4.0
90 – 92	A-	3.7
87 – 89	B+	3.3
83 – 86	B	3.0
80 – 82	B-	2.7
77 – 79	C+	2.3
73 – 76	C	2.0
70 – 72	C-	1.7
67 – 69	D+	1.3
63 – 66	D	1.0
60 – 62	D-	0.7
<60	F	0

REQUIRED TEXTBOOKS AND OTHER COURSE MATERIALS:

Textbook: Cowan, M. K. (2014). Microbiology: a systems approach (4th. Ed.) New York, NY: McGraw-Hill Higher Education.

Required: Students must purchase access code to Late Nite Labs in order to access the lab component of this course.

Optional: Access to McGraw-Hill Connect. Students may choose to purchase access code to Connect in order to access the supplemental learning materials for this course. However, if you prefer to purchase an eTextbook instead of a print copy of the textbook, you must purchase ConnectPlus, which includes Connect and the eTextbook of the Cowan text.

Reliable access to a computer connected to the internet. Students using Windows-based computers should have Windows 8, Windows 7, Windows Vista or Windows XP. Mac users must have Mac OS 10.6 or later. Other operating systems may not support the web browsers and other software necessary for your participation in online course material. See Blackboard course site for detailed system requirements. You may also check your system compatibility at the following:

- **MGH Connect:** <http://connect.customer.mcgraw-hill.com/technical-support/>
- **Late Nite Labs:** <http://latenitelabs.com/support#system-requirements>

ACADEMIC POLICIES

For a full list of academic policies, please see the current academic catalog and handbook at <http://nursing.jhu.edu/catalog>.

HONOR CODE

Students enrolled in the Johns Hopkins University School of Nursing are expected to conduct themselves in a manner that upholds the values of this institution of higher education. Each student is obligated to refrain from violating academic ethics and maintaining high standards of conduct. In addition, the School of Nursing upholds the professional code of ethics established in the Code of Ethics for Nurses (ANA, 2015). Each student is held accountable for adhering to the American Nurses Association Code of Ethics. For the full Johns Hopkins School of Nursing Honor code, please go to <http://nursing.jhu.edu/catalog>.

COMMUNICATION POLICY

Students may communicate with the instructor by email, which is provided in the Contact Information area. The instructor will respond to students within 48 hours. Assignment feedback will be provided to students within one week of submission.

All official communication, notices, & announcements will be distributed through student JHU-SON e-mail accounts via blackboard. The student is accountable for checking this account regularly and for all course communication sent to it.

Students are responsible for reading “Netiquette” which is located under Syllabus & Course Info on the Blackboard site. Netiquette provides simple guidelines for civil on-line discourse & behavior, that participants are to follow and expect of one another.

DISABILITY SERVICES

If you have a disability and may require accommodation in this course, please contact the *Office of Student Affairs* at (410) 955-7545 or SON-StudentAffairs@jhu.edu to discuss your specific needs.

TOPICAL OUTLINE:

Learning activities and assignments will be explained in detail within each learning module under **Course Content** in Blackboard. Unless otherwise noted, all assignments are due on the due date listed in the schedule at **5:00 PM EST/EDT**. Permission for late submission of assignments must be requested from instructor before the due date, and may only be granted under special circumstances.

Module/ Week	Topic	Required Reading	Assignment	Lab Assignments
Prior to start of term	Getting Started		Familiarize yourself with Blackboard and Late Nite Labs Student Introduction Discussion Board Avoiding Plagiarism	Lab - Scientific Method and/or Microbiology Demo
Module 1	Introduction to Microbes & the Tools to Study Them	Chapters 1, 2.2, & 3	Discussion Board 1 Module 1 Quiz	Module 1 - Basic Microscopy & Lab Assignment
Module 2	Prokaryotes	Chapter 4	Discussion Board 2 Module 2 Quiz	Module 2 - Cultivation of Microorganisms & Lab Assignment
Module 3	Eukaryotes	Chapter 5	Discussion Board 3 Module 3 Quiz	Module 3 - Staining & Lab Assignment
Module 4	Viruses	Chapter 6.2-6.6	Discussion Board 4 Module 4 Quiz	
Module 5	Microbial Nutrition	Chapter 7	Discussion Board 5 Module 5 Quiz	Module 5 - Expanded Bacterial Growth & Lab Assignment
Midterm Exam	Midterm Exam			
Module 6	Microbial Metabolism	Chapter 8	Discussion Board 6 Module 6 Quiz	Module 6 - Biochemical Characterization & Lab Assignment
Module 7	Microbial Genetics	Chapter 9	Discussion Board 7 Module 7 Quiz	Module 7 - Cellular Respiration & Lab Assignment

Module 8	Antimicrobial Agents	Chapters 11 & 12	Discussion Board 8 Module 8 Quiz	Module 8 - Control of Bacterial Growth & Lab Assignment
Module 9	Microbe- Human Interactions	Chapter 13	Discussion Board 9 Module 9 Quiz	Module 9 - Antibiotic Sensitivity
Module 10	Nonspecific Host Immunity	Chapter 14	Discussion Board 10 Module 10 Quiz	
Final Exam	Final Exam			