BIOL 2230 Microbiology

Instructor Information:
Name
Office phone
Office location
Office hours
E-mail address

I. Course Description
This is a comprehensive course that stresses applied microbiology and the roles of microbes in health and disease. Topics include microbial structure, growth, metabolism, genetics, ecology, and systematics with emphasis on the pathology of bacteria, viruses, fungi, and protozoa.

Credit: 4 credits, 3 class hours, 3 lab hours
Prerequisite: Level 2 placement in English, Math and Reading.

II. Course Outcomes and Topics
Upon successful completion of this course, the students will:

- Explain the biochemical composition of microbes, historical advancements in microbiology, how microbes reproduce and carry out essential life processes, and environmental requirements needed for their survival.
- Discuss epidemiology, how diseases spread and other factors contributing to emerging and reemerging diseases.
- Categorize human-microbe interactions, in the context of both pathogenic and non-pathogenic organisms and mechanisms by which microbial growth can be detected and controlled.
- Demonstrate a basic understanding of immunology and host defense, including the key cellular components and their functions.
- Explain various diseases and mechanisms by which each specific microbe causes disease and assess how it can be controlled.
- Apply information on microbes in food, industry, evolution, etc. to current topics in microbiology.
- Arrange and record experimental purposes, materials and methods (procedures), synthesize an experimental hypothesis, organize and collect observed experimental data (results), and analyze data and synthesize scientific conclusions in a laboratory notebook.
Course Topics

- History of Microbiology
- Microscopy
- Macromolecules
- Replication, transcription, translation
- Cell wall and staining
- Bacterial growth
- Environmental effects on microbial growth
- Virology, mycology and protozoa
- Epidemiology
- Nosocomial infections including *Staphylococcus aureus*
- Microbial growth and its control
- Human-microbe interactions
- Immunology
- HIV/AIDS
- Bioweapons
- Diagnostic techniques
- Person-to-person diseases
- Animal and arthropod-transmitted diseases
- Other diseases (not in textbook)
- Food and dairy Microbiology
- Systematics

Lab Topics

- Lab Safety
- Microbes are Everywhere
- Use of Microscopes and Observation of Pond Water
- CD-ROM from DNA to Protein
- Observation of Prepared Slides
- Gram Staining
- Pure Culture Technique: Streak Plate
- Effects of Environment on Microbial Growth
- Handwashing Lab
- Typhoid Mary Lab
- Mutagenesis Lab
- Microbial Control Lab (effectiveness of antibiotics, antiseptics and disinfectants)
- Isolation of Antibiotic Producer
- Normal Flora Lab
- Susceptibility to Dental Cavities Lab
- Biochemical Lab #1
- Biochemical Lab #2
- Food and Dairy Lab
- Enterotube Lab
III. Required Materials

Textbook
Summer 2017

Fall 2017

Laboratory Notebook
A hardcover composition book such as National Blank Book Co. #53-008 is required. Be sure the book is a bound book and not a spiral notebook, 3-ring binder, etc.

Black Sharpie Marker
This permanent marker will be used to label all of your lab materials (plates, slides, etc.). Sharpies can be purchased at any office supply store. These cannot be provided for you.

Laboratory Atlas (optional)

IV. Course Policies: **Subject to change at instructor’s discretion**

Attendance Policy
Each Instructor will provide information regarding his/her attendance policy. Failure to attend class will result in a final course grade of “FA” or “FN” (see explanation below), depending on the individual instructor’s course policy.

FA= failure, attendance-related
Per TBR policy, a student who does not officially drop or withdraw from a course, but receives a failing grade, will receive an “FA” if the last day of attendance was earlier than two-thirds into the part-of-term. That date equates to the last day to withdraw from the course.

FN= failure, never attended class (unofficial withdrawal)

You must attend at least 80% of classes to pass the course. Each class period will be a combination of lecture and lab. Therefore, if you miss classes you are
missing valuable lab time that is very difficult or impossible to make up. You will work as lab partners so pick someone with whom you can easily work and who can help you catch up if you are for some reason unable to attend class.

Method of Assessment and Grading
Tests (50% of total grade) and Quizzes (15% of total grade)
There will be a quiz or test almost every week. Each quiz will be worth 20 points and you will be allowed to drop your lowest quiz grade. Therefore, if you miss a quiz, then that will be counted as your dropped score. There will be five tests during the term and each test will be worth 100 points. The final test will be cumulative and will cover all of the course material.

Student Presentation (5% of total grade)
Each student will pick one disease to present from a list of diseases that are to be covered during the course. This will be a short 10-12 minute presentation and will include information addressing 8 predetermined criteria. The main reference for the presentation will be the textbook, but supplemental material from other sources will be encouraged. More details will follow when we get closer to that section of the course. These presentations will be worth 50 points. In addition to my critique of your presentation, the other students in the class will provide you feedback and evaluation of your presentation.

Report (5% of total grade)
You will be required to write a short report about “Microbiology in the News” that will be worth 25 points in which you will write about an article concerning microbiology in a newspaper, magazine, etc. You will discuss in your report how the article applies to microbiology class, why you found it interesting and how microbiology class helped you to understand the article. The report should be about 2-3 pages in length (12 point font). You must attach the original article or a copy of the article to the back of your report. SCIENTIFIC JOURNAL ARTICLES WILL NOT BE ACCEPTED! As with all assignments and assessments in microbiology class, your report will be graded for proper English and grammar as well as content. The report will be worth 25 points.

Other grades
There will be two other main sources of grades in the class, these include the lab notebook (20% of total grade) and a lab practical exam (5% of total grade). Notebooks will be collected for grading twice during the semester and will be worth 100 points at each time. The lab practical exam will be worth 50 points. You will sign up for a specific 10-minute timeslot during finals to come in and take your practical. Altogether, these grades are worth a significant amount of your final grade. Therefore, if you keep up with your work and practice good lab skills, you will earn easy points.

Grading scale:
Your course grade will be calculated based on your tests, quizzes, presentation, report, lab notebook and lab practical exam. Your overall grade will be determined using the following scale:

- 90-100% = A
- 80-89% = B
- 70-79% = C
- 60-69% = D
- 59% and below = F

Safety issues
The instructor will go over current regulations regarding safety in lab classes. You must turn in a signed copy of the regulations, and you will have a copy to keep.

V. ADA Compliance Statement
Nashville State complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Access Center at 615.353.3741 or 615.353.3721.

VI. Classroom Misconduct
Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions. The Nashville State Student Code of Conduct policy is available at http://www.nscc.edu/content/resources/Student_Code_of_Conduct_Policy.pdf.

Please be aware that children are not allowed in class or unattended on campus.

VII. Academic Misconduct
Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. Students are responsible for understanding and aiding by the Academic Misconduct Policy in the Nashville State Student Code of Conduct that can be found at http://www.nscc.edu/content/resources/Student_Code_of_Conduct_Policy.pdf.

In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an “F” or a “Zero” for the exercise, paper, or examination or to assign an “F” for the course. Students may appeal through the appropriate college grade appeal procedures.

Academic Early Warning System
Nashville State Community College has implemented an Early Warning System to notify students via e-mail about academic problems such as poor classroom attendance, poor performance on assignments/tests, poor communication skills,
late/missing assignments, and/or lack of classroom participation. *Please note that Early Warning Alerts do not affect a student’s academic standing.

VIII. RAVE Emergency Alert System

Emergency events can happen at any time and Nashville State Community College wants to be able notify students if and when they occur. For this reason, all students have been enrolled in the free RAVE alert system. If you have not already done so, please log in at https://getrave.com/login/nscc to confirm and update your contact information and notification preferences. It is critical that your information be correct so that you will receive any emergency notifications. Your RAVE Username is your NSCC email address. If you've never received an email from RAVE with your password, or if you need to reset your password, select “Forgot your password?” and a new password will be emailed to you. Should the RAVE system indicate “user not found”, select Register and create your own RAVE account.

IX. Inclement Weather Policy

Nashville State will use the RAVE alert system to send a text message to students, staff, and faculty about adjusted hours of operation and/or closings at individual campuses. All students should check the Nashville State web site home page at www.nscc.edu for announcements on campus closures, which may vary from campus to campus. Campus closures will also be announced on local television stations.

When classes are cancelled, an online assignment will be posted in NS Online. Check NS Online for a message from your instructor regarding your online assignment requirements.

Students should use their own best judgment in determining whether to report to campus during inclement weather when classes are not cancelled.

X. Class Cancellation Policy

If the class is cancelled, the instructor will notify all students by posting in the NSOnline/D2L course, e-mailing through NSOnline/D2L, and/or by posting a sign on the classroom door. In the event of class cancellation, students must access NSOnline/D2L to complete classwork and the assignment that will be posted in the course D2L site.

NOTE: This syllabus is meant simply as a guide and overview of the course outcomes, topics, classroom policies, and standard college policies. Some items are subject to change or revision at the instructor’s discretion. Each instructor will further clarity their criteria for grading, classroom procedures, attendance, exams and dates, etc.