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 (unofficial withdrawal) Last recorded date of attendance required
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 and Quizzes
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
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
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 and a lab practical exam. 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

Class attendance, tardiness, participation and attitude will be taken into consideration for grades on the borderline.

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 Statement
Nashville State complies with the Americans with Disabilities Act. If you would like to arrange ADA accommodations, contact the Access Services Coordinators by phone at 615-353-3721 or 615-353-3741 or in person at the Access Center in room K-106. They will need proof of documentation that is not more than three years old.

VI. Classroom Behavior
Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupt the classroom will be subject to disciplinary sanctions.

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct which violates the general rules and regulations of the College. Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), or the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

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

Academic Dishonesty (Honor Code)

Any form of academic dishonesty, cheating, plagiarizing, or other academic
misconduct is prohibited. “Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words” (A Writer’s Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature.

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.

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