HORRY GEORGETOWN TECHNICAL COLLEGE

INSTRUCTIONAL PACKAGE

BIO 225

Microbiology

Fall 2018- Summer 2019

INSTRUCTIONAL PACKAGE

PART I: COURSE INFORMATION

Effective Term: 2018-2019

COURSE PREFIX: BIO 225 COURSE TITLE: Microbiology

CONTACT HOURS: 3-3 CREDIT HOURS: 4

RATIONALE FOR THE COURSE:
BIO 225 provides students an increased awareness of the potential for infectious transmission of various microbes and an understanding of the ways in which such transmissions can be prevented. Through guided classroom and laboratory experiences, students will be developing skills in the use of sterilization procedures, studying general microbes, their disease producing capabilities, their habitats, and treatments and preventions of various microbial infections. Understanding these concepts is key in the allied health fields that require students to apply these principles in preventing disease transmission among patients.

COURSE DESCRIPTION:
This is a detailed study of microbiology as it relates to infection and the disease processes of the body. Topics include immunity, epidemiology, medically important microorganisms, and diagnostic procedures for identification. This course is transferable to public senior institutions as part of the South Carolina Commission on Higher Education Statewide Articulation Agreement.

PREREQUISITES/CO-REQUISITES:
Credit level BIO 102 Minimum Grade of C or Credit level BIO 211 Minimum Grade of C or Credit level BIO 102 Minimum Grade of TC or Credit level BIO 211 Minimum Grade of TC
*__Online/Hybrid__ courses require students to complete the DLi Online Student Orientation prior to completing an online course. The DLi Online Student Orientation can be found in WaveNet, under the My Student tab.

REQUIRED MATERIALS:
Please visit the Bookstore online site for most current textbook information. Use the direct link below to find textbooks. BOOKSTORE.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

ADDITIONAL REQUIREMENTS:
For Hybrid/Online Students Only: Each student will be required to view an orientation PowerPoint presentation during the first week of class. This presentation can be found on the course homepage in D2L under News. After viewing the presentation, all online students must complete the orientation quiz which can be found under the dropdown assignment menu. A student will not be considered officially enrolled in the course until the presentation has been viewed and the quiz completed with a 100% score. Any submitted work from the student including discussion posts, assignments, etc. will not be given a grade until the presentation has been viewed and the quiz has been submitted. Failure to view the presentation and take the quiz before midnight on the last day to add/drop classes will result in the student being automatically dropped from the course.

TECHNICAL REQUIREMENTS:
Access to Desire2Learn (D2L), HGTC's student portal for course materials. WaveNet and D2L email access.

STUDENT IDENTIFICATION VERIFICATION
Students enrolled in online courses will be required to participate in a minimum of one (1) proctored assignment and/or one (1) virtual event to support student identification verification. Please refer to your Instructor Information Sheet for information regarding this requirement.

CLASSROOM ETIQUETTE:
You are expected to treat your fellow students with respect. This means you should limit talking to your neighbor during lab and do not start to pack up your materials before class is over. As a courtesy to other students, electronic devices such as cell phones, pagers, beepers, iPods, MP3 players, etc. are to be **turned off** (vibrate is unacceptable) before entering the classroom, as it is a distraction to everyone. Laptops are also forbidden unless approved by the instructor. While in the laboratory, you are **not** allowed to eat, drink, or have any food inside of the lab. Any food/drink that is seen in the lab will be confiscated and discarded

NETIQUETTE: is the term commonly used to refer to conventions adopted by Internet users on the web, mailing lists, public forums, and in live chat focused on online communications etiquette. For more information regarding Netiquette expectations for distance learning courses, please visit: Online Netiquette.

ACADEMIC DISHONESTY:
All forms of academic dishonesty, as outlined in the Student Code in the HGTC catalog, will NOT be tolerated and will result in disciplinary action. Anyone caught cheating or committing plagiarism (Defined in the code as: "The appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit") will be given a grade of a zero for that assignment and reported to the Senior VP of Academic Affairs, in accordance with the student handbook. A second offense will result in the student being withdrawn from the course with a "WF" and charges being filed with the Chief Student Services Officer.

Part II: Student Learning Outcomes

Lecture Student Learning Outcomes:
UNIT I: Fundamentals of Microbiology
The student will be summarizing the history of microbiology, assessing various taxonomic schemes, and utilizing several laboratory techniques by:

- Identifying individuals who significantly contributed findings towards the science of microbiology.
- Assessing the various theories in microbiology that were formulated during the "Golden Age of Microbiology."
- Discussing some emerging fatal infectious diseases.
- Identifying various types of growth media.
- Determining which growth media is best suited for certain types of microbes.
- Interpreting colony appearances on various growth media.
- Naming various types of microscopy and indicating how each type can be best utilized in the laboratory.
- Illustrating the methods of classification and identification of microorganisms by listing the characteristics used to classify and identify all microorganisms.
- Identifying the major branches of microbes in their Domains and Kingdoms.

UNIT II: Survey of the Microbial World

The student will be surveying the major groups of microorganisms and comparing their characteristics by:

- Analyzing the major structures of a prokaryotic cell and comparing the similarities and differences with that of the eukaryotic cell.
- Identifying various groups of bacteria, fungi, algae, and protozoa that are of medical importance and explaining how they impact the medical field.
- Choosing the outstanding characteristics for the different phyla of fungi, algae, protozoa, and multicellular parasites.
- Identifying various fungi, algae, protozoa, and multicellular parasites as viewed under a microscope.
- Classifying the major groups of viruses according to their capsid structure and morphology.
- Predicting the effects of a viral infection on an animal host cell.

UNIT III: Methods of Growth and Control

The student will be identifying ways in which microorganisms are promoted in their growth environments as well as ways in which their growth can be inhibited by:

- Analyzing various physical and chemical conditions that are required for growth of microbes, including temperature, pH, oxygen, and osmotic pressure requirements.
- Identifying various physical and chemical agents used to control the growth of microbes, including heat, desiccation, radiation, etc. and defining how they specifically inhibit or kill the microbe.
- Comparing the effectiveness of certain antibiotics against various bacteria.
- Examining the process of protein synthesis as it relates to microbial function.
- Explaining how transcription and translation can occur simultaneously in prokaryotic cells.
- Comparing protein synthesis to DNA replication as it occurs in bacteria.
- Determining various ways in which recombinant DNA is beneficial.

UNIT IV: Interactions between Microbes and Their Host

The student will be analyzing the many defense mechanisms of the host and its effectiveness by:

- Defining various terms such as: normal flora, commensalism, mutualism, parasitism, epidemiology, pathogen, etiology, infection, microbial antagonism, disease, etc.
- Analyzing the role of the body's first, second, and third lines of defenses against microorganisms.
- Discussing the specific roles of phagocytes, fever, inflammation, and certain chemical agents as nonspecific defenses of the host.
- Comparing and contrasting the types of acquired immunity.
- Determining the roles of antigens and antibodies.
- Comparing and contrasting humoral verses cell-mediated immunity.
- Analyzing the different types of hypersensitivity reactions, human blood group compatibilities in transfusions, autoimmune diseases, and various abnormal immune responses.

UNIT V: Microorganisms and Human Disease
The student will be distinguishing various microbial diseases by:

- Determining the various etiological agents, methods of transmission, clinical symptoms, prevention, and pathogenesis of the integumentary system.
- Determining the various etiological agents, methods of transmission, clinical symptoms, prevention, and pathogenesis of the nervous system.
- Determining the various etiological agents, methods of transmission, clinical symptoms, prevention, and pathogenesis of the cardiovascular system.
- Determining the various etiological agents, methods of transmission, clinical symptoms, prevention, and pathogenesis of the respiratory system.
- Determining the various etiological agents, methods of transmission, clinical symptoms, prevention, and pathogenesis of the digestive system.

Lab Student Learning Outcomes:
Learning outcomes for the lab portion of this course are the Objectives given for each lab in the manual and can be found at the start of each lab. They include hands-on items such as identification of lab equipment and specimens on slides, and the use of microscopes, lab equipment and proper lab techniques.

Students – please refer to the Instructor's Course Information sheet for specific information on assessments and due dates.

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*
Students' performance will be assessed and the weight associated with the various measures/artifacts are listed below.

DEPARTMENT OF NATURAL SCIENCES GRADING POLICY
Your grade for this course will be determined solely on the basis of the criteria outlined below. Students will not be allowed to substitute other activities (reports, homework, etc.) to count in place of any of the stated criteria (this means there will be NO extra credit offered). As the tests/exams given in this course are designed to measure the extent to which you have mastered course materials, students should not expect there to be any "curving" of grades.

EVALUATION*

Lecture	75%
Labs	25%
	100%

Students, for the specific number and type of evaluations, please refer to the Instructor's Course Information Sheet.

GRADING SYSTEM:
Please note the College adheres to a 10- point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

Withdrawal before the sixth day of the term is considered a "drop" and will not show on the official transcript. Withdrawal from the sixth day of the term through the two-thirds point of the term results in a grade of "W." Students who withdraw after the two-thirds point will receive either a grade of a "W" (if passing the course at the time of withdrawal), or the course instructor can assign a grade of "WF" (if the student is not passing the course at the time of withdrawal). Students should discuss their withdrawal plans and the grade they will receive with their instructor prior to withdrawal.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the academic calendar for deadlines for add/drop (ACADEMIC CALENDAR). You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of eighty percent (80%) of his or her classes in order to be eligible to receive credit for any course. However, due to the varied nature of courses taught at the College, a more rigid attendance policy may be required by individual instructors. At a minimum, a student may be withdrawn from a course(s) after he or she has been absent in excess of ten percent (10%) of the total contact hours for a course. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

For online and hybrid courses, check your Instructor's Course Information Sheet for any required on-site meeting times. Please note, instructors may require tests to be taken at approved testing sites, if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

Lecture Attendance:
For a 15-week course (fall and spring), the allowed number of absences for a MW or TR class is as follows: Four (4) absences are allowed for lecture, regardless of reason. For a lecture class that meets once a week, the allowed number of absences is two (2). When a student surpasses the allowed number of absences, the student will be dropped automatically from the course with a W or a WF. **Remember, an absence is an absence, no matter if it is excused or not!**

Lab Attendance:
Students are allowed one (1) lab absence for a lab that meets weekly. When a student surpasses the allowed number of absences, the student will be dropped automatically from the course with a W or a WF.

Online/Hybrid Attendance:
Students enrolled in distance learning courses (hybrid and online) are required to maintain contact with the instructor on a regular basis to be counted as "in attendance" for the course. All distance learning students

must participate weekly in an Attendance activity in order to demonstrate course participation. Students showing no activity in the course for two weeks (these weeks do not need to be consecutive) will be withdrawn due to lack of attendance.

Lab Attendance for Hybrid Courses:
Students in hybrid classes in which labs only meet 5 or 6 times during the semester, must attend **all** lab sessions for its entirety. Failure to attend **one** lab will result in immediate withdrawal. Students in hybrid classes where labs meet every week, you are allowed **one** lab absence. When a student surpasses the allowed number of absences, the student will be dropped automatically from the course with a W or a WF.

Part V: Student Resources

The Student Success and Tutoring Center (SSTC)

The SSTC offers to all students the following **free** resources:

1. **Academic coaches** for most subject areas, **Writing Center Support**, and **college success skills.**
2. **On-line student success and academic support resources.**

Visit the SSTC website: Student Success & Tutoring Center and visit the student services tab in your WaveNet account to schedule appointments using TutorTrac. For more information, call: SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455. Room locations and Live Chat is available on the SSTC website.

Student Information Center: WaveNet Central (WNC)

WNC offers to all students the following **free** resources:

1. **Getting around HGTC**: General information and guidance for enrollment!
2. Use the **Online Resource Center (ORC)** for COMPASS support, technology education, and online tools.
3. **Drop-in technology support or scheduled training** in the Center or in class.
4. **In-person workshops, online tutorials and more services** are available.

Visit the WNC website: Wavenet Central. Live Chat and Center locations are posted on the website. Or please call one of the following locations: WNC Conway, 349-5182; WNC Grand Strand, 477-2076; and WNC Georgetown, 520-1473.

Student Testing: (If course is offered in multiple format include this section, delete if only F2F sections are offered.)

Testing in an **online/hybrid** course may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms

Furthermore, tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through RPNow, our online proctoring service. To find out more about proctoring services, please visit the Online Testing section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

Disability Services

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to Jocelyn Williams, Director of Student Development on the Conway Campus Jaime Davis, Counselor/Advisor on the Georgetown Campus or Kristin Griffin, Counselor on the Grand Strand Campus. These individuals will review documentation of the student's disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

Statement of Equal Opportunity/Non-Discrimination Statement

Horry Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, gender, national or ethnic origin, age, religion, disability, marital status, veteran status, sexual orientation, gender identity, or pregnancy in educational programs and/or activities.

Title IX Requirements

Horry Georgetown Technical College prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking. Any student who believe he or she has experienced or witnessed discrimination including sexual harassment, domestic violence, dating violence, sexual assault or stalking is encouraged to report such incidents to one of the College's Title IX Coordinators.

*Faculty and Staff are required to report incidents to the Title IX Coordinators when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

Inquiries regarding the non-discrimination policies:	
Student and prospective student inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Associate Vice President for Student Affairs.	Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Associate Vice President for Human Resources.
Dr. Melissa Batten, AVP Student Affairs *Title IX Coordinator* Building 1100, Room 107A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5228 Melissa.Batten@hgtc.edu	**Jacquelyne Snyder, AVP Human Resources** *Section 504, Title II, and Title IX Coordinator* Building 200, Room 212A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5212 Jacquelyne.Snyder@hgtc.edu