



BIOL 2117: Introductory Microbiology
COURSE SYLLABUS
LECTURE-TUESDAY
Summer Semester 2015

Semester: Summer 2015
Course Title: Introductory Microbiology
Course Number: BIOL 2117
Credit Hours/ Minutes: 3 / 2250
Class Location: Room # 903 HSA
Class Meets: 8:30 AM – 1:15 Tuesday
CRN: 60113

Instructor: Sadia Ajohda
Office Hours: M 7-12:30; TWR 7-8:30
Office Location: 723 RMTTC Bldg.
Email Address: sajohda@southeasterntech.edu
Phone: 912-538-3216
Fax Number: 912-538-3156
Tutoring Hours: By Appointment

REQUIRED TEXT: *Burton's Microbiology For the Health Sciences*; Tenth Edition; Engelkirk and Burton: Copyright 2011. Lippincott, Williams and Wilkins. ISBN#978-1-4511-8632-1

REQUIRED SUPPLIES & SOFTWARE:

Ink pens, highlighter, and any other supplies deemed necessary by instructor.

COURSE DESCRIPTION:

This course provides students with a foundation in basic microbiology, with emphasis on microbial form and function. Topics include: introduction to microorganisms, microbial physiology, metabolism and genetics, control of microorganisms, infection and host response, and microbial, viral, and parasitic diseases of human organ systems.

Pre-requisite: BIOL 2113 and BIOL 2114 Lab and Lecture – Anatomy and Physiology I & II

Co-requisites: BIOL 2117 L – Introductory Microbiology Lab

MAJOR COURSE COMPETENCIES:

1. Microbial Diversity
2. Microbial Cell Biology
3. Microbial Genetics
4. Interactions and Impact of Microorganisms and Humans
5. Microorganisms and Human Disease

GENERAL EDUCATION CORE COMPETENCIES: STC has identified the following general education core competencies that graduates will attain:

- a. The ability to utilize standard written English.
- b. The ability to solve practical mathematical problems.
- c. The ability to read, analyze, and interpret information.

All students pursuing a degree, a diploma, or a Technical Certificate of Credit with a General Education component will be required to pass the General Education Competency Exams prior to graduation.

COURSE OUTLINE:

MICROBIAL DIVERSITY

1. Explain characterization of organisms, including viruses, bacteria, prions, fungi and protozoa.
2. Classify organisms
3. Use staining technique to classify specify organisms

MICROBIAL CELL BIOLOGY

1. Summarize the morphology of bacteria
2. Explain the fine structure of bacteria
3. Identify common gram negative and gram positive bacteria
4. Describe bacteria with unusual properties and complex morphology
5. Execute various staining techniques in order to study the morphology of microorganisms
6. Describe bacterial growth
7. Explain the replication of bacteria
8. Explain the replication of viruses
9. Estimate the number of microbes in a culture medium by both direct and indirect methods
10. Use appropriate microbiological media and test systems
11. Cultivate specific microorganisms in various media
12. Describe the various types of energy production
13. Understand the metabolic diversity of microbes

MICROBIAL GENETICS

1. Describe the cause, consequences and uses of mutations
2. Explain genetic transfer and recombination
3. Identify applications of biotechnology

INTERACTIONS AND IMPACT OF MICROORGANISMS AND HUMANS

1. Describe factors that affect the ability of the host to resist infection
2. Describe host innate or natural defense mechanisms
3. Discuss innate host defenses that offer resistance to microorganism establishment
4. Discuss adaptive host defenses that offer resistance to microorganism establishment, including antibody formation, active and passive immunity, and natural and acquired immunity
5. Differentiate between innate and acquired immunity
6. Discuss the disorders of the immune system
7. Discuss principles of epidemiology
8. Explain portals of entry for pathogenic agents
9. Describe the evasion mechanisms of the pathogen
10. Describe indirect and direct disease transmission method
11. Discuss the effects of immunosuppressive drugs therapy, concurrent disease, and aging on the host-parasite relationship.
12. Discuss the methods by which various antibiotics and chemotherapeutic agents affect microorganisms
13. Discuss practical applications of various disinfection and sterilization procedure
14. Determine antibiotic sensitivity
15. Determine the impact of various disinfectants and antiseptics on microorganisms
16. Evaluate sterility testing procedures
17. Properly use aseptic techniques

MICROORGANISMS AND HUMAN DISEASE

1. Identify the causative agents for the major microbial diseases for each of the following body systems: respiratory, digestive, genitourinary, integumentary, cardiovascular, nervous, and lymphatic.
2. Describe the symptoms and treatment for the major microbial diseases for each of the body
3. Perform tests for detecting microbial infections
4. Discuss methods of control and prevention of disease
5. Discuss and describe emerging infectious diseases and their ramifications on human health

STUDENT REQUIREMENTS:

Students are responsible for the policies and procedures in the STC E-Catalog. During an examination, students are required to place all textbooks and personal property on the floor or counter located in the back or to the side of the classroom. Students are to be seated with an empty seat between each student. No talking is allowed once the test begins. **Students found with cell phone or any other personal communication device during a test will be considered cheating and given a grade zero. This also applies to students who have completed/submitted test to instructor and using cell phone in classroom while testing is still in progress or others are still testing.**

NO EATING/DRINKING IS ALLOWED IN LAB OR CLASSROOMS.

Students are expected to exhibit professional behavior at all times. Each student must show respect and concern for fellow students and for the course instructor. Insubordination will not be tolerated, and disciplinary measures will be enacted. No cell phones or pagers are allowed to be turned on in the classroom. Personal phone calls must be handled after class. Watches with alarms should not be programmed to sound during class.

ATTENDANCE GUIDELINES: Class attendance is a very important aspect of a student's success. Being absent from class prevents students from receiving the full benefit of a course and also interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus.

Instructors have the right to give unannounced quizzes/assignments. Students who miss an unannounced quiz or assignment will receive a grade of 0. Students who stop attending class, but do not formally withdraw, may receive a grade of F and face financial aid repercussions in upcoming semesters.

ADDITIONAL ATTENDANCE PROVISIONS

Health Sciences

Requirements for instructional hours within Health Science and Cosmetology programs reflect the rules of respective licensure boards and/or accrediting agencies. Therefore, these programs have stringent attendance policies. Each program's attendance policy is published in the

program's handbook and/or syllabus which specify the number of allowable absences. All provisions for required make-up work in the classroom or clinical experiences are at the discretion of the instructor.

Attendance is counted from the first scheduled class meeting of each semester. To receive credit for a course a student must attend at least 90% of the scheduled instructional time. Time and/or work missed due to tardiness or absences must be made up at the convenience of the instructor. Any student attending less than the required scheduled instructional time (90%) may be dropped from the course as stated below in the Withdrawal Procedure.

Tardy means arriving after the scheduled time for instruction to begin. Early departure means leaving before the end of the scheduled time. Three (3) tardies or early departures equal one (1) absence for the course.

For this class, which meets 1 day a week for 9 weeks, the maximum number of days a student may miss is 1 day during the semester.

SPECIAL NEEDS: Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact Jan Brantley, Room 1208 Swainsboro Campus, 478-289-2274, or Helen Thomas, Room 108 Vidalia Campus, 912-538-3126, to coordinate reasonable accommodations.

SPECIFIC ABSENCES: Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

PREGNANCY: Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please advise me and make appropriate arrangements with the Special Needs Office. Swainsboro Campus: Jan Brantley, Room 1208, (478) 289-2274 -- Vidalia Campus: Helen Thomas, Room 108, (912) 538-3126.

WITHDRAWAL PROCEDURE: Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% portion of the semester (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" is assigned when the student completes the withdrawal form from the course.

Students who are dropped from courses due to attendance (see your course syllabus for attendance policy) after drop/add until the 65% point of the semester will receive a "W" for the course. Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of 'F' being assigned.

After the 65% portion of the semester, the student will receive a grade for the course. (Please note: A zero will be given for all missed assignments.)

There is no refund for partial reduction of hours. Withdrawals may affect students' eligibility for financial aid for the current semester and in the future, so a student must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be assessed due to the withdrawal. All grades, including grades of 'W', will count in attempted hour calculations for the purpose of Financial Aid.

Remember - Informing your instructor that you will not return to his/her course does not satisfy the approved withdrawal procedure outlined above.

EVALUATION PROCEDURES

In order to sit for the final exam, a student must maintain a Lecture Test and Lab Test Average of 70 or above prior to the date of the scheduled final. Grades of 69.9 will not be rounded up. Assignments, lab reports, or presentation grades are not included in Tests averages, only Tests grades. If the student has below a 70 average, the student will be given a letter grade based on Tests average.

MAKEUP GUIDELINES:

Students will be allowed to make-up **one lecture** examination, (**excluding the final examination**), due to an **excused absence** approved by the course instructor. If the student misses more than one lecture examination, a grade of zero will be assigned. There will be no makeup for lab exams. If the student misses a lab examination, a grade of zero will be assigned. There will be one day designated for the make-up Lecture exam. It will be scheduled at the end of the semester. Failure to take a make-up exam on the specified date will result in a grade of zero. **There will be no drop grade for lab or lecture exams.**

Final Examination: A comprehensive final examination will be given at the end of the semester. There will be no make-up exam for the final examination. **Failure to take the final examination on the specified date will result in a grade of zero.** The final exam will include all chapters covered.

Assignments: Students are required to read each chapter and complete Learning Objectives listed at the beginning of each chapter. Learning Objectives should be hand written and turned in EACH WEEK. Chapter quizzes/Self Assessments at the end of each chapter should be completed and turned in as well.

Group Project/Presentation: Students will work in small groups (2-5 people/group) and give an educational Power Point presentation on a topic chosen by the Instructor. List of topics to choose from along with guidelines for arrangement, content, requirements, and rubric for Power Point presentations are provided on STC's "M" drive. Presentations should be 15-20 minutes long. Please ensure presentations are within time limit. Do not exceed 20 minutes or do not present less than 15 minutes. Points will be deducted if presentation is over or under time limit. You are required to include visual aid, short video clips or any materials/media that will enhance presentation. However, video clips should not exceed 3-4 minutes. Each presentation should not exceed 2 video clips. Points will be deducted for additional video clips. Group members should have **equal participation** for this project. The week before presentations, Instructor will ask all group members for feedback on equal participation. Feedback on equal participation includes but not limited to the following: participating at group meetings during Lecture/Lab or out of class meetings, corresponding/communicating in a timely manner with group members to provide information on assigned portion of project, and providing pertinent information regarding assigned portion of project. The week of Presentation (date indicated on lesson plan), **all presentations should be submitted to instructor and saved on Instructor's Computer (Desktop) prior to the designated presentation day.**

ACADEMIC DISHONESTY POLICY: The STC Academic Dishonesty Policy states *All forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline.* The policy can also be found in the *STC Catalog and Student Handbook.*

Procedure for Academic Misconduct

The procedure for dealing with academic misconduct and dishonesty is as follows:

--First Offense--

Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.

--Second Offense--

Student is given a grade of "WF" for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.

--Third Offense--

Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

STATEMENT OF NON-DISCRIMINATION: Southeastern Technical College does not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, disabled veteran, veteran of Vietnam Era or citizenship status, (except in those special circumstances permitted or mandated by law). This school is in compliance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin; with the provisions of Title IX of the Educational Amendments of 1972, which prohibits discrimination on the basis of gender; with the provisions of Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap; and with the American with Disabilities Act (ADA).

GRIEVANCE PROCEDURES: Grievance procedures can be found in the Catalog and Handbook located on STC's website.

ACCESS TO TECHNOLOGY: Students can now access Angel, Remote Lab Access, Student Email, Library Databases (Galileo), and BannerWeb via the mySTC portal or by clicking the Current Students link on the STC website at www.southeasterntech.edu.

GRADING SCALE:

Grading Scale:		
A	Excellent	100 - 90
B	Good	89 - 80
C	Satisfactory	79 - 70
D	Poor	69 - 60
F	Failing	59 - 0

<p>Each Students final grade for the course will be calculated in the following manner...</p> <p>(Chapter Exams.).....x 0.50 = + _____</p> <p>(Group Project/Presentation..).....x 0.05 = + _____</p> <p>(Assignments).....x 0.05 = + _____</p> <p>(Final Exam Score).....x 0.40 = + _____</p> <p>Numerical Course Grade.....= _____</p>
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GRADING COMPONENTS:

Chapter Exams	50%
Group Project/Presentation	5%
Assignments(Learning Obj. etc.)	5%
Final Exam	40%

<p>TCSG GUARANTEE/WARRANTY STATEMENT:</p> <p>The Technical College System of Georgia guarantees employer that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State Technical College at no charge for instructional costs to either the student or the employer.</p>

***MAJOR COURSE COMPETENCIES:**

1. Microbial Diversity
2. Microbial Cell Biology
3. Microbial Genetics
4. Interactions and Impact of Microorganisms and Humans
5. Microorganisms and Human Disease

****General Core Educational Competencies**

- a) The ability to utilize standard written English.
- b) The ability to solve practical mathematical problems.
- c) The ability to read, analyze, and interpret information.

LESSON PLAN BIO 2117 – LECTURE: **TUESDAY**

Subject to change at the discretion of the Instructor *PLEASE BRING LECTURE TEXT AND LAB MANUAL TO ALL CLASSES*

Date	Lecture Text Chapter(s) & Content	Assignments/Tests	Comp.
TUES 5/26	Chapter 1:Microbiology – The Science Chapter 2:Viewing the Microbial World Chapter 3:Cell Structure & Taxonomy Chapter 4:Acellular & Procaryotic Microbes Chapter 5:Microbial Diversity	ORIENTATION: Syllabus, lesson plan, regulations etc. <i>Introduced in LAB</i> Chapter Learning Objectives (LO) and Self-Assessment Exercises (SA).	CC a-d GC 1-3
TUES 6/2	Lecture Test #1 Chapter 6:Biochemistry: The Chemistry of Life Chapter 7: Microbial Physiology & Genetics Chapter 8:Controlling Microb. Growth in Vitro Chapter 9:Controlling Micro Growth in Vivo	Lecture TEST 1 (Chs: 1,2,3,4) Chapter Learning Objectives and Self-Assessment Exercises.	CC a-d GC 1-3
Note For Lab this week – Control of Microbial Growth. Please bring any “anti-bacterial” agent. Ex: Listerine, antibacterial hand soap, antibacterial windex, Lysol products, hand sanitizer or any type of multi surface antibacterial agent. Must be liquid or gel. No wipes/sponges etc.			
TUES 6/9	Lecture TEST #2 Chapter 10:Microb.Ecology & Microb. Biotech. Chapter 11:Epidemiology & Public Health Chapter 12:Healthcare Epidemiology Chapter 13:Diagnosing Infectious Diseases	Lecture TEST 2 (Chs: 5,6,7) Chapter Learning Objectives and Self-Assessment Exercises.	CC a, c GC 1-3
TUES 6/16	Lecture TEST #3 AND Lab Test #1 Chapter 14:Pathogenesis of Infectious Disease Chapter 15:Nonspecific Host Defense Mech. Chapter 16:Specific Host Defense Mech. Chapter 17:Overview of Infectious Diseases	Lecture TEST 3 (Chs: 8,9,10) Lab Test 1 (Chapters 1-8) Chapter Learning Objectives and Self-Assessment Ex.	CC a-d GC 1-4
TUES 6/23	Lecture TEST #4 Chapter 18:Viral Infections Chapter 19:Bacterial Infections Chapter 20:Fungal Infections Chapter 21:Parasitic Infections	Lecture TEST 4 (Chs: 11,12,13) Chapter Learning Objectives and Self-Assessment Exercises.	CC a, c GC 3-5
6/30	HOLIDAY	Summer Break – No Classes	_____
7/7	Lecture TEST #5 AND Lab Test# 2	Lecture TEST 5 (Chs: 14,15,16) Lab Test 2 (Chapters 9-15)	CC a, c GC 3-5
7/14	Lecture TEST #6 Case Study Power Point Pres. (continued)	Lecture TEST 6 (Chs: 17,18,19)	CC a-c GC 3-5
7/21	LAB AND LECTURE FINAL EXAMS – ALL CHAPTERS	FINALS: Lab & Lect. (Ch. 1 - 21)	CC a-d GC 1-5
To sit for Final Exams: <u>Tests</u> average (assigts. not included) for Lab & Lect. must be 70 or above			
7/28	Lab Reports/ Check Offs: Gillis Lab 729	Lecture Exam make-up day	CC a-d GC 1-5