Course Outline

Course Number  
MLT 214

Course Title  
CLINICAL MICROBIOLOGY

Credits  
6

 Hours:  
Lecture 5/ Lab 3

Pre-requisite  
MLT 112, 212, 207

Fall 7B

Course description:
Principles and methods used in clinical microbiology including isolation, identification, and antibiotic susceptibility testing of pathogenic bacteria. Introduction to medical parasitology, mycology and virology. Laboratory component develops the technical and critical thinking skills used to evaluate clinical microbiology specimens.

Revision Date: 1/2020

Course Coordinator:  Lisa M Shave M.S., MLS(ASCP)SCM

Course Instructor:
Office hours: In-person
   ZOOM virtual meeting: Any day/time by appt. only

Phone:
Email:

Course Materials
Required
2. White lab coat- This must be a knee-length coat with a fitted wristband/cuff; it reduces the potential for splashes up the arm and fire hazards.
3. Gloves - latex or nitrile, not vinyl (mark with your name)
4. Plastic case marked with your name (for all materials) 5. Digital timer that indicates time in minutes and seconds.
5. Black, blue, and purple ink pen. (NO WORK IN PENCIL ACCEPTED)
6. Permanent marker, fine point, black.
7. Colored pencils
8. Notebook/3 ring binder:
   9. ✓ Tabs or dividers are needed to identify and separate the following sections: Syllabus - including schedule and unit objectives, lecture PowerPoints, graded materials & other informative material.
10. Laboratory manual (SOP’s and labs):
   11. ✓ Print out available at the library

Course Format/Delivery
On-campus- This is a face-to-face course whereby students meet two days a week. Didactic course material is presented on-campus with lecture-based instruction in the morning followed by student laboratory sessions in the afternoon. The course requires a lot of outside proactive work by the student. The instructor will provide guidance as needed. Students will access and print out course materials from the course’s Blackboard shell. Assessment activities are provided as a means
of assisting students in determining their level of competence in given areas as well as to assist in reviewing for examinations. Weekly homework assignments will be required to enhance the student's learning experience.

**Hybrid**- This is a web-blended course whereby didactic course material is presented mainly online and student laboratory sessions are held weekly on the college campus. The course requires a lot of outside proactive work by the student. The instructor will provide guidance as needed. Students will access and print out course materials from the course’s Blackboard shell. Lab manuals are available for purchase the MCCC bookstore. Assessment activities are provided as a means of assisting students in determining their level of competence in given areas as well as to assist in reviewing for examinations. Assignments will be posted to enhance the student’s learning experience. Online discussion boards are mandatory; they are an essential tool for communication between peers and between students and instructors. The student must take all major examinations (midterm and final) at an approved testing center.

**Technology Expectations**
Students must have access to a computer with Internet connection, either at home, the library or MCCC campus. A 56K modem connection is recommended. Mozilla Firefox 3.6 browser is recommended, although Internet Explorer 7 and 8, Google Chrome and Safari 4.3.2 can be used. AOL is NOT supported by Blackboard. Cookies, JavaScript, Active Scripting and Pop-up Windows must be enabled on the browser you use.

**Schedule**

**Lecture Meeting Days** = There are scheduled face-to-face classes.

**Lecture Modes of Instruction**
- Blackboard Learning Management System (see below for access directions)
- Lecture PowerPoints
- Internet resources
  - MediaLab, Inc (click for link)
  - Kahoot
  - Others (Youtube, etc.)

**Laboratory Room/Time** = MS320 on Tuesdays and Thursdays (OC) and Wednesdays (Hybrid). Face-to-face laboratory sessions will take place in the afternoon on meeting days in Room MS320, during the semester and will be mandatory. All laboratory procedures MUST BE PRINTED for each laboratory session. Students must abide by all policies contained in the college and program handbook & Lab Safety Manual.

**Time Commitment**
According to Flint’s “Surviving College,” ([https://www.umflint.edu/advising/surviving_college.htm](https://www.umflint.edu/advising/surviving_college.htm)) you should budget your time per week for this six hour credit course as follows:

1. PowerPoints/Readings assigned: 2 to 3 hours
2. Assignments: 6 to 12 hours
3. Time for review and test preparation: 6 hours
4. Total study time per week: 12 to 18 hours PER WEEK

**Blackboard On-Line System**
This course will be conducted via the computer on-line Blackboard learning system. **Online tutorial sessions** are available to help you understand how to use Blackboard. The dates/times can be found on the MCCC website by clicking here. Students may use their home computers OR may access all materials using any public computer or electronic device. **Students are strongly advised NOT to use iPads, tablets or cell phones to take course quizzes/examinations.**

**-Logging in to Blackboard**
- To get to Blackboard, use this URL: Click here or you can log in through your MyMercer Portal. Enter your username, and then enter your password (the password you set up when activating your account). Click Login. Click the name of your course in the My Courses area to enter the course site. If you do not see your course listed, it may be because your instructor has not yet made the site available. If you are sure that you registered for the course, check back later. Contact your instructor via email if the course is not available when the semester begins. You will see course materials as individual documents or in folders in content areas such as Course information, Course Documents, or Assignments or whatever name the instructor uses. If a document is not immediately displayed on the
screen, click on the link to the file to either view it in the browser or save it on your own computer to open with the appropriate program.

**Use of MCCC Email**
All students will be required to use the email address issued by MCCC to access course materials, learning activities, and quizzes on-line. (Students may forward their MCCC email to their personal email accounts, if desired. Directions on forwarding gmail accounts can be found by clicking this link: [Click](#). In addition, all College e-mail communication (events, closings, delayed openings, etc.) to students will be sent solely to the student’s MCCC email account, with the expectation that such communications will be read in a timely fashion.

**College Policies:**
The current college student handbook can be found by clicking [here](#) and contains important documents for understanding your rights and responsibilities as a student in the MCCC classroom (face-to-face or online). Please read your catalog and handbook as they supplement this syllabus, particularly for information regarding:
- Student Conduct Code
- Academic Integrity Code
- Student Grade Appeal Process

**Course-specific General Education Knowledge Goals and Core Skills**

**General Education Knowledge Goals (GE)**
- **Goal 1. Communication.** Students will communicate effectively in both speech and writing.
- **Goal 2. Mathematics.** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
- **Goal 3. Science:** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
- **Goal 8. Diversity.** Students will understand the importance of a global perspective and culturally diverse peoples

**MCCC Core Skills (CC)**
- **Goal A. Written and Oral Communication in English.** Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
- **Goal B. Critical Thinking and Problem-solving.** Students will use critical thinking and problem solving skills in analyzing information.
- **Goal C. Ethical Decision-Making.** Students will recognize, analyze and assess ethical issues and situations.
- **Goal D. Information Literacy.** Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
- **Goal F. Collaboration and Cooperation.** Students will develop the interpersonal skills required for effective performance in group situations.
- **Goal G - Intra-Cultural and Inter-Cultural Responsibility.** Students will demonstrate an awareness of the responsibilities of intelligent citizenship in a diverse and pluralistic society, and will demonstrate cultural, global and environmental awareness.

**Course Competencies/Goals**
Upon completion of this course the student will be able to:

1. Demonstrate knowledge of and adhere to established guidelines for working with potential pathogens to ensure biohazard safety (GC C, D, GG 3)
2. Apply knowledge of specimen integrity. (GC C, GG 3)
3. Evaluating patient samples for potential pathogens and indigenous microflora. (GC B, GG 3)
4. Apply the principles of various staining techniques used in the microbiology laboratory to
5. evaluate direct smears from specimens and culture smears (GC B, GG 3)
6. Identify the phenotypic characteristics of common pathogenic bacteria, parasites, fungi and emerging bioterrorism agents. (GG 3)
7. Develop laboratory skill competencies used to: a) isolate & identify bacteria b) cultivate infectious agents c) perform phenotypic and genotypic diagnostic methodologies d) set up and interpret antimicrobial susceptibility testing e) issue a finalized microbiology reports and f) maintain quality control standards (GC A, B, D, GG 1, 3)

8. Give a presentation on a common infectious agent including clinical symptoms, laboratory diagnostics and treatment of the microbe (GC A, B, D, E, GG 1, 3, 4)

**Week 1  Intro to Clinical Microbiology, Safety Practices and Preliminary Identification Methods of Microorganisms**

Upon completion of this unit the student will be able to:

**Learning objectives:**

1. Describe the nomenclature used to classify microorganisms (GC A, GG 1, 3)
2. Distinguish between the terms phenotypic and genotypic; prokaryotic and eukaryotic (GG 3)
3. Describe the different ways microorganisms can transfer genetic information (GC A, GG 1, 3)
4. Explain the different metabolic pathways that microorganisms use to form energy (GC A, GG 1, 3)
5. Define the terms: infection, normal flora, opportunistic pathogen, nosocomial infections (HAIs), endogenous infection, exogenous infection, asymptomatic carriers, colonization, multi drug resistant (MDR), Infection Control Committee, mode of transmission, sentinel event, virulence, isolation precautions, surveillance cultures (GC A, GG 1, 3)
6. Distinguish between humoral and cell mediated immunity (GG 3)
7. Describe components of a good Quality Assurance program (TQM, CQI, PI, PT, Lean, Six Sigma). Explain how Quality Assurance helps to provide quality patient care? (GC A, B, GG 1)
8. Explain what a Standard Operating Procedure manual is and why it is important (GC A, D, GG 1)
9. Explain 'standard precautions' as it applies to a clinical microbiology lab setting (CG A, GG 1, 3) List organisms found in each Biosafety level 1-4 category. Describe the 4 different classes of Biosafety hoods/cabinets (GG 3)
10. Define the terms used to eliminate microorganisms: sterilization, disinfection & antiseptic (GC A, GG 1, 3)
11. List the physical and chemical methods of hazardous waste material disposal (GG 3)
12. Explain the purpose of MSDS sheets (GC A, D, GG 1, 3)
13. List 4 different types of fire extinguishers. Explain how fire extinguishers are properly used in an Emergency (GC B)
14. Explain the standard guidelines for packaging and transporting infectious materials (GC A, GG 1, 3)
15. Describe the lab’s standard protocol for an accidental exposure to an infectious agent or hazardous material (GC A, B, GG 1, 3)
16. Explain proper collection methods for microbiology specimens. List some reasons for specimen rejection (GC A, B, GG 1, 3)
17. Explain the different purposes for different types of media (GC A, GG 1, 3)
18. Describe the proper atmospheric conditions needed for optimal bacterial cultivation (GC A, GG 1, 3)
19. Describe the difference in the cell wall formation of gram positive and negative organisms (GC A, GG 1, 3)
20. Compare the different of microscopes used in diagnostic labs (Light, fluorescent, electron) (GG 3)
21. Distinguish between traditional (phenotypic) and molecular (genotypic) identification methods (GG 3, 7)
22. Explain common immunological and serological techniques used in infectious agent identification (GC A, GG 1, 3)

**Performance (psychomotor) objectives:**

1. Exercise safety practices during laboratory sessions. (G3, GB)
2. Demonstrate the operation of an autoclave used for sterilizing objects and fluids (GG 2, 3)
3. Follow specimen collection protocols for attaining various clinical laboratory specimens. (GG 3)
4. Set up cultures from various body sites using different media and streaking techniques. (GG 3)
5. Streak agar plates qualitatively and quantitatively for isolated colonies. (GG 2, 3)
6. Place cultures in the appropriate atmospheric conditions for optimal growth of pathogens (GG 3)
7. Properly store specimens for further testing (GG 3)
8. Properly operate and perform maintenance on a light microscope (GG 3)
9. Determine and record the morphology of bacterial colonies grown on agar (GG 3)
10. Apply the use of proper Gram staining technique. Determine the staining characteristics of gram positive and gram negative bacteria (GC B, GG 3)
**Week 2  Staphylococcus species, Streptococcus species, and Gram-Positive Rods**

**Antimicrobial Susceptibility**

Upon completion of this unit the student will be able to:

**Learning objectives:**
1. Differentiate the phenotypic characteristics of *Staphylococcus* and *Micrococcus* spp. (GG 3)
2. Explain the principles of the conventional tests used to identify *Staphylococcus* spp.: Catalase, coagulase slide & tube, StaphaurexTM (GC A, GG 1, 3)
3. Describe the 2 different mechanisms that result in resistant strains of Staph (GC A, B, GG 1, 3)
4. Explain the ‘D test’ and the implications of a positive test (GC A, GG 1, 3)
5. List the species of Streptococcus that are considered 1) Alpha hemolytic, 2) Beta hemolytic and 3) Gamma (non) hemolytic (GG 3)
6. Name some of the conventional biochemicals and immunological tests used to identify Strep species (GC A, GG 1, 3)
7. Explain the laboratory method for isolating and identifying nutritionally variant Strep (GC A, B, GG 1, 3)
8. Name the natural habitat and clinical significance of *Bacillus anthracis, B. cereus* and *B. subtilis* (GG 3)
9. Differential between pathogenic and nonpathogenic strains of *Corynebacterium* (GG 3)
10. Describe how Listeria infections are spread and which laboratory methods are used to identify it (GC A, GG 1, 3)
11. List the disease states associated with *Erysipelothrix, Gardnerella* and *Lactobacillus* spp. (GG 3)
12. Discuss the procedures and test result interpretations for manual, automated and molecular methods used for susceptibility and resistance testing (GC A, B, GG 1, 2, 3)

**Performance (psychomotor) objectives:**
1. Fill in daily ‘Preventative Maintenance’ chart and record any necessary trouble shooting (GC B, D)
2. Perform ‘parallel testing’ with different lots of testing kits (GC B, GG 3)
3. Set up stock cultures of ATTC strains of bacteria for laboratory QC (GG 3)
4. Identify gram positive unknown using gram staining, biochemical and immunological techniques (GC B, GG 2, 3)
5. Set up manual susceptibility tests using Kirby Bauer diffusion disks and E tests for aerobic and anaerobic microorganisms (GG 3)
6. Interpret results of manual susceptibility tests (GG 2, 3)
7. Demonstrate how automated systems are used for the susceptibility testing of pathogenic bacteria (GG 2, 3)

**Week 3 Enterobacteriaceae, Nonfermentative Gram-Negative Bacilli and Miscellaneous Gram-Negative Bacilli**

Upon completion of this unit the student will be able to:

**Learning objectives**
1. Describe the phenotypic traits that characterize the Enterobacteriaceae family. Differentiate between pathogenic and normal fecal flora in this family (GC A, GG 1, 3)
2. List the selective and differential agars used in isolating gram negative rods (GC B, GG 3)
3. Explain the clinical significance of *E. coli* O157:H7 (GC A, GG 1, 3)
4. Define ESBL, KPC and MDR isolates (GC A, GG 1, 3)
5. Explain how to set up and interpret a ‘Modified Hodge Test’ (GC A, B, GG 1, 2, 3)
6. Describe the phenotypic characteristics and clinical significance of the gram negative nonfermenters: *Acinetobacter, Bordetella, Burkholderia, Pseudomonas, Stenotrophomonas, Ralstonia, Chrysemonas and Flavimonas* (GC A, GG 1, 3)
7. Outline the normal habitat and general characteristics of the following gram negative rods
8. *(Achromobacter, Alcaligenes, Comamonas, Flavobacterium, Moraxella spp.)* (GG 3)
9. Describe the colonial morphology of *Vibrio* spp. and specialized media used for isolation (GC A, GG 1, 3)
10. Explain the clinical significance of *Aeromonas, Chromobacterium and Sphingomonas spp.* (GCA, GG 1, 3)
11. Identify the key phenotypic characteristics and clinical significance of *Eikenella and Pasteurella* spp. (GG 3)
12. Identify the key phenotypic characteristics and clinical significance of *Actinobacillus, Kingella, Capnocytophaga and Cardiobacterium spp.* (GG 3)

**Performance (psychomotor) objectives:**
13. Perform conventional biochemical testing on common gram negative pathogens (GC B, GG 3)
14. Set up commercial biochemical tests for the identification of gram negative pathogens (GG 3)
15. Use biochemical profile testing to identify microorganisms (GC B,D,GG 3)
16. Demonstrate how an automated system is used for identification of pathogenic bacteria (GG 3)
17. Identify gram negative unknown using gram staining and biochemical profiling (GC B, GG 3)
Week 4  Miscellaneous Gram-Negative Bacilli Cont. and Neisseria species
Upon completion of this unit the student will be able to:

Learning Objectives
Upon completion of this unit the student will be able to:
1. Detail the clinical symptoms seen in infections with Haemophilus spp.: H.influenzae, H.parainfluenzae, H.ducreyi, H. aegyptius, H. hemolyticus, H.parahemolyticus (GC A, GG 1, 3) 2
2. Describe the unique growth requirements needed to cultivate members of Haemophilus spp. (GC A, GG 1, 3) 2
3. List the clinical symptoms resulting from an infection with Neisseria gonorrhoeae, N.meningitides and Moraxella catarhalsis (GC 3)
4. Explain how Haemophilus, Neisseria and Moraxella catarhalsis can be definitively identified in the lab (GC A, B, GG 1, 3)
5. Discuss the various habitats for Bartonella spp. (GC A, GG 1, 3)
6. Describe the pathogenesis, identification methods and treatment of Helicobacter pylori (GC A, GG 1, 3)
7. List the pathogenic species of Campylobacter and explain how it is identified in the lab. (GG 3)
8. Identify the causative agent of Legionnaire’s disease and diagnostic methods (GG 3)
9. Discuss the various habitats for Brucella spp. and the clinical symptoms caused by infection with these organisms (GC A, GG 1, 3)
10. Name the causative agent of whooping cough and tularemia. Explain the lab methods used to identify these infectious agents (GC A, GG 1, 3)
11. List the classes of antimicrobials and their mode of action (GG 3)
12. Differentiate between: antimicrobial and antibiotic; synergy and antagonism; sensitive, intermediate and resistant; bactericidal and bacteriostatic (GG 3)
13. Explain 5 different mechanisms of antimicrobial resistance (GC A, B, GG 1, 3)
14. Discuss the procedures and test result interpretations for manual, automated and molecular methods used for susceptibility and resistance testing (GC A, B, GG 1, 2, 3)
15. Give an overview of methods used to cultivate and identify anaerobic bacteria (GC A, B, GG 1, 3)
16. List pathogenic anaerobes and explain their pathogenesis (GC A, GG 1, 3)

Performance (psychomotor) objectives:
1. Identify Haemophilus, Neisseria, Moraxella catarhalsis and obligate anaerobic bacteria using gram staining and biochemical profiling (GC B, D, GG 3, 4)
2. Set up manual susceptibility tests using Kirby Bauer diffusion disks and E tests for aerobic and anaerobic microorganisms (GG 3)
3. Interpret results of manual susceptibility tests (GG 2, 3)
4. Demonstrate how automated systems are used for the susceptibility testing of pathogenic bacteria (GG 2, 3)
5. Employ the proper techniques for cultivating and identifying Campylobacter in the laboratory. (GG 3)

Week 5  Spirochetes, Mycobacterium and Anaerobes
Upon completion of this unit the student will be able to:

Learning Objectives
Upon completion of this unit the student will be able to:
1. Describe the morphology, cultivation and test methods used to identify Spirochetes (GC A, GG 1, 3)
2. Explain how Mycobacteria differ from other classes of bacteria in terms of composition, staining characteristics, cultivation and identification (GC A, GG 1, 3)
3. Explain when it is necessary to do susceptibility testing on Mycobacterium spp. (GC A, B, GG 1, 3)
4. Define and differentiate among obligate, facultative and obligate anaerobes (GG3)
5. Identify three anaerobe that are normal flora of the body and identify the site(s) of each. (GC A, B, GG 1, 3).
6. State the purpose of the different types of anaerobic media utilized (GG3).
7. Site the clinical relevance and important characteristics of the following gram-negative bacilli: Bacteroides fragilis, Prevotella intermedia, Porphyromorhas asaccharolyticus, Fusobacterium spp, Clostridium spp. (GC A, B, GG 1, 3).

Performance (psychomotor) objectives:
1. Determine if a patient may have syphilis by performing an RPR and observe a demonstration of an FTA confirmatory test. (GC B, GG 3)
2. Perform an EIA test on a patient’s sample to test for a Mycoplasma pneumonia infection (GG 3)
3. Prepare smears using the modified acid fast and acid fast staining techniques. Observe the staining characteristics of each class of organisms (GG 3)
4. Demonstrate cultivation techniques, biochemical tests and molecular assays used in the identification of the Actinomycetes and Mycobacteria spp. (GG 3)

**State which tests are performed on a mother’s pre-natal blood sample.** (G1,3, GA,B)

**Week 6  Mycology and Virology**
At the completion of this week, the student will be able to:

**Learning (cognitive) objectives:**
1. Define the mycology terms: saprophytic, dimorph, telomorph, hyphae, chlamydospore, mycelium, phialides, conidia, sporangia and dematiaceous (GC A, GG 1, 3)
2. Differentiate between superficial, cutaneous, subcutaneous and systemic mycosis. Give an example of each (GG 3)
3. List the media used in the cultivation of molds and yeast (GG 3)
4. List the common dermatophytes and describe their pathogenesis (GG 3)
5. Describe common antifungal agents and their mode of action (GC A, GG 1, 3)
6. Explain how molds and yeast are identified (GC A, B, GG 1, 3)
7. Describe the recent taxonomic changes made for Pneumocystis jiroveci (GC A, GG 1, 3)
8. Describe the structure of a ‘virion’ (GC A, GG 1, 3)
9. Explain the steps of viral pathogenesis (GC A, B, GG 1, 3)
10. Give an overview of specimen collection for viral cultures (GC A, B, GG 1, 3)
11. Outline the traditional and modern ways of identifying viruses: cell culture, shell vial, hemadsorption, Tzanck smear, immunological, serological and molecular methods (GC B, GG 3)
12. List the viral families and give an example of a virus found in each (GG 3)
13. Explain how viral susceptibility testing differs from bacterial (GC A, B, GG 1, 3)
14. Name the commonly used antiviral agents (GC A, GG 1, 3)
15. Give examples of pathogens seen in the following organ infections: blood, upper and lower respiratory, oral cavity, CNS, eyes, ears, sinuses, urinary and genital tract, gastrointestinal tract, wound infections, sterile body fluids and bone (GC A, B, GG 1, 3, 5)

**Performance (psychomotor) objectives:**
1. Demonstrate how to set up a cell culture and shell vial for virus isolation and identification (GC B, GG 3)
2. Determine the CPE (cytopathic effect) seen in cell cultures. Observe fluorescent staining of viral inclusions from a shell vial (GC B, GG 3)

**Week 7: Parasitology (Protozoan Parasites & the Helminths)**
At the completion of this week, the student will be able to:

**Learning (cognitive) objectives:**
1. Name the different types of specimens collected for the identification of parasites (GC A, GG 1, 3)
2. Explain the life cycle and morphology of Plasmodium, Babesia, Trypanosoma and Leishmania spp. (GC A, GG 1, 3)
3. Describe the best diagnostic method for identifying the following intestinal pathogens: Entamoeba, Endolimax, Iodamoeba, Blastocystis, Giardia, Chilomastix, Dientamoeba, Balantidium, Cryptosporidium, Cyclospora, Isospora, Sarcocystis, Enterocytozoon and Encephalitozoon spp. (GC A, B, GG 1, 3)
4. Differentiate pathogenic microfilaria based on the presence of a sheath & tail nuclei (GG 3)
5. Diagram the life cycle of Schistosomes and identify the eggs of the 5 different species (GG 3)
6. List the parasites that can cause meningitis and encephalitis. (GG 3)
7. Explain specimen collection requirements are for the isolation of Trichomonas vaginalis (GC A, GG 1, 3)
8. List the populations that are at risk for infections with Toxoplasma spp. (GG 3)
9. Describe the life cycle and unique morphology of the intestinal nematodes: Ascaris, Enterobius, Strongyloides, Trichuris, Ancyclostoma and Necator spp. (GC A, B, GG 1, 3)
10. Identify the following structures of the parasitic Cestodes: scolex, suckers, proglottid and Rostellum (GG 3)
11. Define ‘hydatid cyst’ (GC A, GG 1, 3)
12. Describe the life cycle of Taenia solium (pork tapeworm) (GC A, GG 1, 3)
13. Describe the unique morphology of the clinically significant intestinal, liver and lung Trematodes: Fasciolopsis, Clonorchis, Fasciola, Paragonimus spp. (GC A, GG 1, 3)

**Performance (psychomotor) objectives:**
1. Examine trichrome smears to identify the unique features of helminth eggs and worms. Be able to use a Parasite Atlas to assist in identification features. (GC B, D, GG 3)
2. Perform staining techniques used in the identification of molds and yeast. Be able to use a Mycology Atlas to assist in identification features (GC D, GG 3)
3. Set up a biochemical test for the identification of yeast. Interpret the test results using an online compendium (GC B, D, E, GG 3)

**Week 8: Infections in Organ Systems**
At the completion of this week, the student will be able to:

**Learning (cognitive) objectives:**
1. List the microorganisms usually associated with septicemia. (GC A, GG 1, 3)
2. Witness the proper collection of blood cultures using proper technique. (GC A, GG 1, 3)
3. List the microorganisms most frequently associated with bacterial and viral meningitis. (GC A, GG 1, 3)
4. Discuss the collection of cerebrospinal fluid as it pertains to the gross examination, gram staining, primary plating and identification of any pathogens. (GC A, GG 1, 3)
5. Compare throat cultures and sputum samples and identify commonly isolated normal flora and pathogens from each. (GC A, GG 1, 3)
6. Describe the proper urine collection technique used for microbiology specimens. (GC A, GG 1, 3)
7. List microorganisms most frequently associated with urinary tract infections. (GC A, GG 1, 3)
8. Understand how stool samples are processed and screened for pathogens in the microbiology lab. (GG 3)
9. Name the sexually transmitted diseases and indicate the etiologic agent for each. (GC A, GG 1, 3)
10. List the major pathogens associated with wound or abscess infections. (GC A, GG 1, 3)
11. Briefly discuss infections of the normally sterile body fluids, the eye and the ear. (GC A, GG 1, 3)

**PERFORMANCE EXIT LEVEL SKILLS**
Upon completion of this course the student will be able to:

1. Demonstrate safety and quality control practices in clinical microbiology (GC C, GG 3)
2. Operate an autoclave used for the sterilization of objects and fluids. (GG 3)
3. Collect microbiology specimens and set up cultured from various body sites (GC B, GG 3)
4. Properly operate and perform maintenance on a light microscope (GG 3)
5. Determine the morphology of bacterial colonies and staining characteristics of gram positive and gram negative bacteria (GC B, GG 3)
6. Complete daily ‘Preventative Maintenance’ chart and record all corrective action (GC B, GG 2, 3)
7. Perform ‘parallel testing’ on diagnostic test kits (GC B, GG 3)
8. Set up stock cultures of ATTC strains of bacteria for laboratory QC (GG 3)

**Laboratory Competency Skills**
During the laboratories, measures are in place to assess the student’s cognitive, affective and psychomotor domains. Specifically, the student’s mastery of procedural theory and entry-level laboratory techniques will be evaluated using pre-labs, in-lab assignments, timed laboratory practicals, and case studies. The affective domain will be evaluated weekly and is based on the student’s ability to meet specific professional behavior criteria.

**Affective Objectives**
Affective objectives are behavioral standards that will be implemented during the professional phase of the Medical Laboratory Technology Program. Students’ professional performances will be evaluated during the laboratory course and will be returned to the student with their all laboratory worksheets submitted. This has a direct effect on the final letter grade earned. See below for a detailed list of the criteria. **Unsatisfactory performance in any area of the behavioral standards will require a consultation with the faculty and/or the MLT Program coordinator.** The reason for the consultation will be clearly
stated, counsel will be given and an action plan will be implemented. The student will be given the opportunity to give a written response. The consultation form will be kept in the student’s file.

PROFESSIONAL PERFORMANCE EVALUATION

1. DEPENDABILITY
The student arrives in the laboratory with adequate time to start lab session as scheduled. The student comes with appropriate manual and supplies, and wearing required laboratory attire. The student shows evidence of having reviewed the assigned topic before coming to the laboratory. The student completes assignments (lab reports, homework assignments, etc) on time.

2. ATTENTIVENESS
The student is attentive to the instructor, takes complete notes and proceeds with laboratory work without repeated instructions. The student follows verbal and written instructions, asks pertinent questions when necessary, and seeks the instructor’s assistance when needed. The student neither distracts others nor allows distractions to affect completion of laboratory exercises.

3. ORGANIZATION
The student demonstrates the ability to organize work to be done within the available laboratory time. The student is able to perform multiple tasks without jeopardizing accuracy and precision.

4. INDEPENDENCE
The student demonstrates the ability to work independently by exercising independent judgement and thinking logically in using the protocols and instructions given. The student draws on previously gained information to solve problems without prompting from instructor. The student seeks activities to expand knowledge, ability and performance.

5. RECORD KEEPING
The student demonstrates the importance or proper record keeping by accurately and legibly labeling/recording laboratory work and reports (i.e. sample containers, reagents and worksheets).

6. MANAGEMENT AND ECONOMY
The student conserves reagents and supplies. The student maintains an adequate supply of common use items at their appropriate workstation. The student takes proper care of equipment.

7. SAFETY
The student works in an orderly and safe manner, enabling others to safely work in the same general area. The student adheres to the guidelines of the Laboratory Safety Regulations (e.g. wearing eye protection, keeping long hair tied back, and properly storing hazardous materials).

8. INTERPERSONAL SKILLS
The student communicates in a professional, positive, tactful manner with peers and instructors. The student consistently shows common courtesy (e.g. restocks supplies) and contributes towards achieving an environment conducive to work and learning for self and others.

9. COMPOSE
The student maintains composure and work quality under stressful conditions and adapts quickly to new situations. The student recognizes his/her own personal strengths and weaknesses and works positively within that framework. The student accepts evaluation of performance as constructive when offered by instructors and follows through with suggestions made.

10. INTEGRITY
The student accepts accountability for work performed. The student readily admits errors, follows procedures (including quality control) as written, and maintains confidentiality of patient results, if applicable. Student exhibits perseverance to obtain accurate results.

Scoring: Total number of possible points= # of weeks x # of categories X 4 (Greatest achievable score) =n Achieved points = student scores: Total of numbers each week (#4s + #3s+ #2s+#1s)

Cut off values: Upper cut-off value=0.675n; lower cut-off value= 0.425n

How your Final Grade can be Affected
IF a>0.675n, then the course grade is increased one step (e.g., from C to C+)
IF a is between 0.425n and 0.675n, then the course grade is unaffected (e.g. C remains C)
IF a<0.425n, then the course grade is decreased one step (e.g. C to C-).

If course grade remains within range: student will receive full credit for affective score
GRADING POLICY
To receive a passing grade, students must earn a 77 or higher. A final grade of 77 or higher in each Medical Laboratory Technician course is required in order to progress to the next MLT course and to graduate.

<table>
<thead>
<tr>
<th>Grade</th>
<th>93-100</th>
<th>90-92</th>
<th>87-89</th>
<th>83-86</th>
<th>80-82</th>
<th>77-79</th>
<th>70-76</th>
<th>60-69</th>
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<tr>
<td>A</td>
<td>B-</td>
<td>A-</td>
<td>B+</td>
<td>B</td>
<td>C</td>
<td>C+</td>
<td>D</td>
<td>F</td>
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</tbody>
</table>

**Lecture**
- Presentation: 5%
- Assignments: 10%
  - Discussions
  - HW
  - Other
- Quizzes: 10%
- Midterm: 10%
- Final: 15%

**Laboratory**
- SOPs/Labs: 10%
- Gram Stains: 5%
- Participation: 10%
- Midterm: 10%
- Final: 15%

**Extra credit** work will not generally be recognized in evaluating student performance; however, individual instructors have limited flexibility in recognizing additional effort by an individual student. For this course, there is NO EXTRA CREDIT opportunities.

**Late work**
I expect assignments to be turned in ON-TIME. Lecture/Lab HW will be handed in before the student leaves for the day. I do not accept late assignments in this course. Late work will receive no points. If you are sick on the day an assignment is due, you can e-mail me the assignment before lecture time. If this is an extended absence, you should phone or email me as soon as possible to discuss your return and submission of work with documentation. I encourage you to email me or make an appointment if you are having any problems.

- **Online assignments MUST be submitted by midnight on the deadline listed;** 5 points will be deducted for each day the assignment is late, up to 5 days. Assignments submitted 6 or more days late will be graded and returned to the student, but the grade awarded will be “0”.
- **THERE ARE NO MAKEUP EXAMS** (including online and in-person).- Except in extreme cases of sickness (contagion or hospitalization, etc.) or death of an immediate family member (father, mother, grandparent, sibling, spouse, or child). Students must provide supporting documentation before the make-up will be administered. It is the responsibility of the student to contact the instructor for make-up exams/ and to provide the documentation.

**Progression in the MLT Professional Courses**
As noted in the MLT Program handbook, a final grade of a C+ or better in each Medical Laboratory Technology course is necessary to progress to the next professional phase course.

**Unsatisfactory Performance**
Unsatisfactory performance in any area (cognitive, psychomotor or affective), failure to follow directions or procedures, unsafe or unethical behavior, or failure to keep a grade of 77 or above in the course will require a consultation with the faculty and/or the MLT Program coordinator. The reason for the consultation will be clearly stated, counsel will be given and an action plan will be implemented. The student will be given the opportunity to give a written response. The consultation form will be kept in the student’s file and progress must be made by following the plan of action.
Lecture

Presentation:
An oral presentation is mandatory during this course. A topic will have to be approved by week 5 of lecture. The presentation will include a minimum of 5 PowerPoint slides, not including title slides and the bibliography slide. 3 sources must be used and documented in APA format (see owl.purdue.edu). An outline of the material and slides must be turned in beforehand. Creativity is encouraged! Note: All materials used during presentation must be approved beforehand. Presentation is worth 5% of the lecture grade.

Discussions
Although not explicitly graded, you will be evaluated on the QUALITY of your contributions and insights. Quality comments possess one or more of the following properties:

• Offers a different and unique, but relevant, perspective;
• Contributes to moving the discussion and analysis forward;
• Builds on other comments;
• Transcends the “I feel” syndrome. That is, it includes some evidence, argumentation, or recognition of inherent tradeoffs. In other words, the comment demonstrates some reflective thinking.
• Follow proper online discussion etiquette: Online Discussion Etiquette Guide

Discussion Rubric
You must post an initial thread in response to the Discussion topic and comment on at least 2 other students to receive full credit. See below for the rubric image. The most amount of points awarded for each discussion is 3 points. 3 pts=100%

You must post an initial thread in response to the Discussion topic and comment on at least 2 other students to receive full credit. See below for the rubric image. The most amount of points awarded for each discussion is 3 points. 3 pts=100%

Note: Please use the following FORMAT as the SUBJECT LINE FOR YOUR INITIAL DISCUSSION which must be posted by WEDNESDAY of each week. “ LASTNAME.WEEK__ DISCUSSION”

Example= SHAVE.WEEK 1 DISCUSSION
SHAVE.WEEK 2 DISCUSSION

Thank you for your cooperation. Failure to comply with this may limit the Professor’s ability to grade you fairly.
Homework:
There are 16 homework assignments of which all are due at the beginning of each class. Homework may be typed and printed out, emailed, or handwritten. See schedule for due dates. If the assignment is not turned in at the beginning of the class, no credit will be received. The average grade of homework assignments will be worth 10% of the lecture grade.

Quizzes:
There will be quizzes after each week. Each quiz will consist of the weeks material and will consist of 20 multiple choice questions. All, except the first, will be closed book. Any cheating will result in a grade of zero and will be referred to further disciplinary action. The average grade of quiz’s will be worth 10% of the lecture grade.

Midterm/Final:
The midterm and final will consist of 100 questions each. 85 multiple choice and 15 open-ended questions. Any cheating will result in a grade of zero and will be referred to further disciplinary action. The midterm is worth 10% and the final is worth 15% of the lecture grade. These exams must be taken through Proctor U or at the MCCC Testing Center.

Laboratory

Standard Operating Procedures:
There will be 8 SOP’s due during this course. All must be typed and must follow the template provided. SOP’s will be turned in as a two-part assignment. Refer to the schedule for due dates of pre and post-SOP’s. SOP’s may be typed and printed out, hand written, or emailed.

Labs:
There will be 6 graded labs during this course. All 6 will have a corresponding SOP. At the end of the lab, a 2-paragraph minimum summary will be due along with its corresponding SOP and worksheets. There will be a repeat lab opportunity given at the end of the course, if needed. Summaries may be typed and printed out, hand written, or emailed. Combined Labs and SOP’s is worth 10% of the lab grade.

Gram Stains:
5-gram stains will be provided at the beginning of each lab week, not including the weeks of midterm and final. It is at the student’s discretion to use any down time to read these slides. All five slides are due by the last lab day of the week. They may be turned in early. The average grade of gram stains is worth 5% of the lab grade.

Midterm/Final:
The midterm and final will be based on the labs (graded and non-graded) throughout the course. It is encouraged to produce SOP’s of high caliber, as these will be allowed during the exams. Emphasis should be placed on graphs, flowcharts, and graphics. All SOP’s must be turned in prior to midterm and final for review. They will be returned at the beginning of each exam. The midterm is worth 10% and the final is worth 15% of the final lab grade.

Participation:
A participation grade will be given for lecture and lab. The average will be worth 10% of the overall grade. Attendance will be included in participation grade. See page 14 for the attendance policy. It is a short 8-week course, keep in mind that attendance is crucial!
Extra credit:
Extra credit will be assigned to those who actively use the Lab CE simulator. A screen shot of at least one completed exam must be provided at the end of each week. It is encouraged to use this simulator, as it is a wonderful study tool for the ASCP certification. Do your best to beat your previous score!
Note: Any extra credit may be awarded at the end of course at the discretion of the teacher. It is NOT a given.

Communication between Student and Instructor
Instructor role:
- **Blackboard Announcements** will be posted by the instructor in the Announcement Page of the course. This announcement will forever appear on this page. A copy of the message is also sent to your MercerMail.
- **Email Communication**: As previously mentioned, all communication will be sent to your MercerMail account.

Student role:
- **Students are expected to check their Mercermail at least once daily M-F and once during the weekend for important course related messages (announcements and emails from the instructor).**
- **Blackboard Announcements**: students should be sure to check their email as well as the Blackboard section each time they sign on to the course.
- **Immediate, specific, personal questions for the instructor**: Students can send a message through Blackboard using the Course Messages link on the tab to the left in the course or write an email using your MercerMail.

Turnaround Time (Instructor to Student)
- **Questions (Non-assignments)**: You can expect all correspondence sent via email using your MercerMail to your instructor to be responded to within 24 hours Monday through Friday. The instructor will notify the class if there will be longer periods of time where responses may be delayed.
- **Assignments/Exams/Grades**: Turnaround times for papers, journals, essays, short-answer questions and other manually graded written assignments will be graded within one week after the due date. Grades will be posted to BlackBoard LMS.

Attendance
Attendance and participation at all classes is consistent with academic success. In addition, today’s health care employer puts great emphasis on attendance and often times request to see a referral from this program concerning your attendance record.
- **Face-to-Face Lecture Policy**
  - **Students are expected to attend all lecture sessions.** If an extenuating absence is anticipated, please e-mail shavel@mccc.edu or call/leave a message at my office 609-570-3387. Please leave a message if your call forwards to voicemail. Absence from class, even if called in, must be for a legitimate reason; otherwise the absence will be counted as unexcused. The student is responsible for any material missed. For any missed labs, the student will receive a zero as a participation and any assignments that were due that or handed out on that day.
  - **Excessive absence**: If a student misses more than 10% of the meeting days, they must report to a mandatory consultation with the instructor to develop a corrective action plan.
    - A student must follow this plan. If the student continues to miss more than 20% of a course’s meeting days or does not follow the action plan, the student will be dismissed from the course with a W or receive a grade of F if the course is past the college’s withdrawal period.
  - **Lateness/Exits**: Students are allowed two (2) unexcused lateness’s or exits from class. Each additional lateness or exit will result in a half a letter grade deduction. Lateness is defined as appearing for class 10 minutes or more after the start of the scheduled Session. Exit is defined as leaving a class for 10 minutes or more while it is in progress and returning, or leaving early from a class that is in progress.
- **Face-to-Face Laboratory**: **Students MUST attend all Weekly Laboratory classes.** There are **NO makeups.**
• **Excessive absence** - If a student misses more than 10% of the meeting days, they must report to a mandatory consultation with the Instructor to develop a corrective action plan.
  o A student must follow this plan. If the student continues to miss more than 20% of a course’s meeting days or does not follow the action plan, the student will be dismissed from the course with a W or receive a grade of F if the course is past the college’s withdrawal period.

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• **Withdrawn Immediately**
  o If you miss a full week of laboratory sessions, you may be withdrawn from the course with a W or receive a grade of F if the course is past the college’s withdrawal period

*The Department reserves the right to require written verification for absences. Students absent or late without notifying the Department are considered unexcused and are subject to the policies stated above.*

**Student complaints & Grade disputes:**
The student has a right to appeal the decision of the instructor or the Academic Integrity Committee. Judicial procedures governing violations of Academic Integrity are contained in the Student Handbook. Approved by the MCCC Board of Trustees March 18, 2004

**Academic Integrity Violations for On-Campus and Hybrid Students**
The college recognizes the following general categories of violations of academic integrity, with representative examples of each. Academic integrity is violated whenever a student:

A. **Uses or obtains unauthorized assistance in any academic work.**
   • copying from another student’s exam
   • using notes, books, electronic devices or other aids of any kind during an exam when prohibited.
   • stealing an exam or possessing a stolen copy of an exam

B. **Gives fraudulent assistance to another student.**
   • completing a graded academic activity or taking an exam for someone else
   • giving answers to or sharing answers with another student before, during or after an exam or other graded academic activity.
   • sharing answers during an exam by using a system of signals

C. **Knowingly represents the work of others as his/her own, or represents previously completed academic work as current.**
   • submitting a paper or other academic work for credit which includes words, ideas, data or creative work of others without acknowledging the source.
   • using another author’s words without enclosing them in quotation marks, without paraphrasing them or without citing the source appropriately.
   • presenting another individual’s work as one’s own.
   • submitting the same paper or academic assignment to another class without the permission of the instructor.

D. **Fabricates data in support of an academic assignment.**
   • falsifying bibliographic entries
   • submitting any academic assignment which contains falsified or fabricated data or results

E. **Inappropriately or unethically uses technological means to gain academic advantage**
   • inappropriately or unethically acquiring material via the Internet or by any other means.
   • using any electronic or hidden devices for communication during an exam.

Each instructor and Academic Student Resources area is authorized to establish specific guidelines consistent with this policy.
“Online students are held to the same level of accountability as students in a traditional classroom. As such, all online students should become familiar with and strictly adhere to MCCC’s Academic Integrity policies, which can be found at [www.mccc.edu/academic_policies_integrity](http://www.mccc.edu/academic_policies_integrity).

Furthermore, MercerOnline at Mercer County Community College provides each student with a unique username and password whereby students may access their online courses and complete work assigned therein. It is the responsibility of each student to keep these login credentials confidential. Sharing of login credentials with any individuals other than the course instructor or members of the MercerOnline staff is a grave violation of academic integrity policies and poses a risk to the security of their online course. Students who fail to maintain the confidentiality of their login credentials and thus compromise the security of the online course environment will be subject to disciplinary action.”

**Consequences for Violations of Academic Integrity**

For a single violation, the faculty member will determine the course of action to be followed. This may include assigning a lower grade on the assignment, assigning a lower final course grade, failing the student in the course, or other penalty appropriate to the violation. In all cases, the instructor shall notify the Chair of the Academic Integrity Committee of the violation and the penalty imposed. When two (or more) violations of academic integrity are reported on a student, the Academic Integrity Committee (AIC) may impose disciplinary penalties beyond those imposed by the course instructors. The student shall have the right to a hearing before the AIC or a designated AIC subcommittee.

**MediaLab, Inc.**

All students have a free subscription to MediaLab, Inc. which will be utilized for the purpose of enhancing concepts and skills learned each week. Students have already been granted access and should keep their username and password private. All assigned MediaLab courses must be completed by the deadline. **A passing grade of 70% is required in order for the course to be deemed successful. Students may attempt a course twice. Please reach out to the instructor if you'd like to reattempt so that permission can be granted.**

**Cellular Telephones, Personal Telephone Calls, and Electronic Devices**

Students are NOT to receive or place telephone calls or text messages during class, labs, or clinical hours. Cellular telephones and other electronic devices are to be silenced before entering the classroom, student laboratory, or the clinical site. Inappropriate use of any electronic device may result in disciplinary action. Students wishing to take pictures or record a Professor’s instruction must be granted approval to do so.

**Reasonable Accommodations for Students with Documented Disabilities**

Mercer County Community College is in compliance with both the ADA and Section 504 of the Rehabilitation Act. If you have, or believe you have, a differing ability that is protected under the law please see Arlene Stinson in LB216, (609) 570-3525, stinsona@mccc.edu for information regarding support services. **These accommodations must be made PRIOR to the start of the course.**

**Equal Opportunity Policy**

Mercer County Community College is committed to equal opportunity and affirmative action. Discrimination on the basis of race, creed, color, national origin, ancestry, age, gender, affectional or sexual orientation, marital status, familial status, liability for service in the Armed Forces of the United States, nationality, political views, religion, disability unrelated to job or program requirements or any other characteristic protected by law is prohibited. Questions regarding the equal opportunity policy and compliance statement may be directed to the Affirmative Action Officer, West Windsor Campus, (609) 586-4800, ext. 3270
<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Lecture</th>
<th>Chapters</th>
<th>Lecture HW</th>
<th>Lab Objectives</th>
<th>Labs</th>
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<tr>
<td>ONE (10/22)</td>
<td></td>
<td>Safety in the Clinical Micro Lab</td>
<td>1</td>
<td>Ch. 1 Review Questions</td>
<td>Lab Safety, PPE, PM, QC</td>
<td>(1) Gram Stain Lab-class</td>
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<tr>
<td></td>
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<td>Specimen Collection/ Processing</td>
<td>2</td>
<td>Ch. 2 Review Questions</td>
<td>Gram Stains Lab (as a class make GS QC)</td>
<td>(2) Hemolysis Lab</td>
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<td>Preliminary Identification</td>
<td>3</td>
<td>Ch. 3 Review Questions</td>
<td>Kit tests - Strep</td>
<td>(3) Throat Cx Lab</td>
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<td></td>
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<td>Microscopy, Staining</td>
<td>4</td>
<td>Ch. 4 Review Questions</td>
<td>Set-up Throat Cx’s</td>
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<td><strong>Open Book Quiz</strong></td>
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<td>TWO (10/29)</td>
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<td>AST</td>
<td>6</td>
<td>Ch. 6 Review Questions</td>
<td>GS</td>
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<td>Staph, Cat +, GPC</td>
<td>7</td>
<td>Ch. 7 Review Questions</td>
<td>Hemolysis Lab</td>
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<td></td>
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<td>Strep, Entero</td>
<td>8</td>
<td>Ch. 8 Review Questions</td>
<td>Identifying NF</td>
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<td><strong>Quiz 1</strong></td>
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<td>Presumptive ID vs. Sensi</td>
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<td>THREE (11/5)</td>
<td></td>
<td>Neisseria</td>
<td>9</td>
<td>Ch. 9 Review Questions</td>
<td>Set-up Urine Cx</td>
<td>(4) Urine Cx Lab</td>
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<td></td>
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<td>Enterobact.</td>
<td>10</td>
<td>Ch. 10 Review Questions</td>
<td>GS</td>
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<td>GN/GP growth</td>
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<td>Misc. GNB</td>
<td>11</td>
<td>Ch. 11 Review Questions</td>
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<td>Ch. 13 Review Questions</td>
<td>Oxidase Indole</td>
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<td><strong>Quiz 2</strong></td>
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<td>Spirochetes</td>
<td>15</td>
<td>Ch. 15 Review Questions</td>
<td>GS &amp; AFB Stains</td>
<td>(5) Respiratory Cx</td>
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<td>Mycobacterium</td>
<td>17</td>
<td>Ch. 17 Review Questions</td>
<td>Virus vs. Bacteria</td>
<td>(6) AFB Lab</td>
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<td></td>
<td>Turn in all attachments for MIDTERM REVIEW</td>
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<td>Mycobacterium (cont.)</td>
<td>18</td>
<td>Ch. 18 Review Questions</td>
<td>Taxo P</td>
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<td>Set-up KBS</td>
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<td><strong>Quiz 3</strong></td>
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***11/11/19-11/15/19: MIDTERMS WEEK***
Lab Midterm: Friday 11/15/19 8:00am-2:30pm
SignUpGenius to follow

16
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Chapter</th>
<th>Review Questions</th>
<th>Labs</th>
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<tr>
<td>11/19</td>
<td>Misc. GNB, GPB</td>
<td>12, 14</td>
<td>Ch. 12 Review Questions, Ch. 14 Review Questions</td>
<td>Identifying NF, Stool Cx Lab/Fecal Leukocyte Lab, Parasite Lab</td>
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<td>11/26</td>
<td>Parasitology</td>
<td>21</td>
<td>Ch. 21 Review Questions</td>
<td>Parasite Lab</td>
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<td>11/26</td>
<td>Quiz 4</td>
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<td>Submit Topic for Presentation</td>
<td>Stool WBC</td>
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<td>12/3</td>
<td>Anaerobes, Virology, Clinical Specimens</td>
<td>16, 19, 22</td>
<td>Ch. 16 Review Questions, Ch. 19 Review Questions, Ch. 22 Review Questions</td>
<td>Blood Cx Lab</td>
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<td>12/3</td>
<td>Mycology</td>
<td>20</td>
<td>Ch. 20 Review Questions</td>
<td>GS &amp; Wet mount, Mold ID</td>
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<td>12/3</td>
<td>Automation</td>
<td>5</td>
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<td>YSTID PNL</td>
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<td>12/3</td>
<td>Quiz 6, Presentations</td>
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***12/9-12/19: FINALS WEEK***
Lab Final Friday December 13th 8:00-2:30pm
SignUpGenius to Follow
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<tr>
<th>Week</th>
<th>In-Person Meeting Day</th>
<th>Lecture</th>
<th>Chapters</th>
<th>Lecture HW</th>
<th>Lab Objectives</th>
<th>Labs</th>
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<tr>
<td>ONE</td>
<td>Friday October 25th 8:00-2:30pm</td>
<td>Safety in the Clinical Micro Lab</td>
<td>1</td>
<td>Ch. 1 Review Questions</td>
<td>Lab Safety, PPE, PM, QC</td>
<td>(1) Gram Stain Lab-class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specimen Collection/Processing</td>
<td>2</td>
<td>Ch. 2 Review Questions</td>
<td>Gram Stains Lab (as a class make GS QC)</td>
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<td>Microscopy, Staining</td>
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<td>Ch. 4 Review Questions</td>
<td>Set-up Throat Cx’s GS</td>
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<tr>
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<td>AST</td>
<td>6</td>
<td>Ch. 6 Review Questions</td>
<td>Hemolysis Lab</td>
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<td></td>
<td>Staph, Cat +, GPC</td>
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<td>Ch. 7 Review Questions</td>
<td>Identifying NF</td>
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<td>Strep, Entero</td>
<td>8</td>
<td>Ch. 8 Review Questions</td>
<td>Presumptive ID vs. Sensi Catalase, Coagulase, Taxo A, Streptex</td>
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<tr>
<td></td>
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<td>Quiz 1</td>
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<tr>
<td>TWO</td>
<td>Friday November 1st 8:00-2:30pm</td>
<td>Neisseria</td>
<td>9</td>
<td>Ch. 9 Review Questions</td>
<td>Set-up Urine Cx GS</td>
<td>(4) Urine Cx Lab</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enterobact.</td>
<td>10</td>
<td>Ch. 10 Review Questions</td>
<td>GN/GP growth Identifying NF Oxidase</td>
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<td>THREE</td>
<td>Friday November 8th 8:00-2:30pm</td>
<td>Spirochetes</td>
<td>15</td>
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<td>GS &amp; AFB Stains Virus vs. Bacteria Taxo P</td>
<td>(5) Respiratory Cx</td>
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<td>Mycobacterium</td>
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<td>Set-up KBS Read KBS &amp; P disc</td>
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<td>Turn in all attachments for MIDTERM REVIEW</td>
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