
Biology Department, College of Arts & Sciences, Valdosta State University

FALL 2009----COURSE SYLLABUS*

BIOL 2900, Sections A & B. Microbiology in Health and Disease (CRN 81602 & 81603) – 4 credit hours

Class:	TR	8:00-9:15 am, 1025 Bailey Science Center
Laboratory:	TR	<u>Section A</u> 10:00-11:25 am, 2068 Bailey Science Center
	TR	<u>Section B</u> 2:00-3:25 pm, 2068 Bailey Science Center

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Course Description:

BIOL 2900 Microbiology in Health and Disease 3-3-4 (4 credit hours)

Corequisite: CHEM 1152K. An introductory microbiology course with emphasis upon the role played by microorganisms in health and disease. Open to students who plan to enter the health or allied health fields without a major in biology. Two 1.5 hour laboratory periods per week.

Textbook: **MICROBIOLOGY, A HUMAN PERSPECTIVE, Sixth Edition**
by Eugene W. Nester, Denise G. Anderson, C. Evans Roberts Jr., and Martha T. Nester. McGraw-Hill 2009

Laboratory Manual: **BENSON'S MICROBIOLOGICAL APPLICATIONS, LABORATORY MANUAL IN GENERAL MICROBIOLOGY (short version), Eleventh Edition**
by Alfred E. Brown. McGraw-Hill, Inc. 2009

Other Materials: calculator that is not part of a cell phone or other electronic device; permanent, medium- or fine-tip marking pen (Sharpie) for labeling cultures in lab; one CD or jump drive for oral presentation; one file folder (or other type of thin, light-weight folder) for handing in assignments; paper clips or stapler/staples for organizing references and assignments

SPECIAL NOTES TO STUDENTS:

1. In order to respect the privacy of each student, exam scores and grades will not be posted, given out by telephone, or sent to students by email.
 2. Students should consult the VSU Student Handbook, Undergraduate Catalog, Fall Semester Calendar, Schedule of Classes, & Registration Guide for information about VSU policies and procedures regarding registration, drop/add, and withdrawal. October 8 is midterm. Students are not permitted to withdraw after midterm except in cases of hardship.
 3. Students requesting classroom accommodations or modifications because of a documented disability should discuss this need with the instructor at the beginning of the semester. These students must contact the Access Office for Students with Disabilities located in Farber Hall. The phone numbers are 245-2498 (V/VP) and 219-1348 (TTY).
 4. Cell phones may not be used during examinations or at any time in class or lab.
 5. Students must read and follow the Biology Department policy on plagiarism (available online through the departmental web site). The instructor may use a variety of methods for detecting plagiarism. Each student must be particularly careful to do his/her own writing on the oral presentations and on the lab reports that are to be completed individually. Plagiarism will result in a grade of "0" for the assignment. A student who plagiarizes on more than one assignment will receive a grade of "F" in the course.
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***This is a tentative syllabus. Changes to this syllabus will be announced during class or laboratory periods; alternatively, changes may be posted on Blazeview.**

COURSE OBJECTIVES

After successful completion of this course, the student should be able to:

- (1) Describe the physical properties, biochemical composition, cellular characteristics, growth, metabolism, functions, significance, and control of different types of microorganisms and helminths.
 - (2) Describe the physical properties, biochemical composition, replication strategies, functions, significance, and control of viruses and other non-cellular infectious agents.
 - (3) List several activities of microorganisms that are beneficial to humans and the environment.
 - (4) Describe the innate defenses and the adaptive immune response of a human to a foreign antigen.
 - (5) Explain how infectious diseases are transmitted, giving specific examples.
 - (6) List the major types of virulence factors observed in pathogenic bacteria, giving specific examples.
 - (7) List and describe human diseases that are due to specific bacteria, fungi, protozoa, helminths, viruses, and prions.
 - (8) Properly handle microorganisms and specimens in a biosafety level 2 laboratory.
 - (9) Use a compound light microscope to examine various types of microorganisms.
 - (10) Keep accurate records of microscopic observations, as well as other laboratory and field work.
 - (11) Use culture media to grow bacteria and fungi in the laboratory.
 - (12) Use staining techniques and physiological tests as aids in bacterial identification. List and describe several molecular methods that are used in detecting and identifying microorganisms and viruses.
 - (13) Use dilutions to determine the colony-forming units per milliliter in a bacterial suspension and the plaque-forming units per milliliter in a viral suspension.
 - (14) Analyze and interpret the results of experiments conducted in the laboratory.
 - (15) Use library and electronic resources to obtain formal scientific articles related to a particular topic in microbiology.
 - (16) Read and understand current scientific literature related to microbiology and immunology.
 - (17) Convey orally information from the scientific literature related to microbiology and immunology.
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Alignment of Assignments with Course Objectives:

The course objective(s) aligned with each assignment are given on page 10.

Alignment of Course Objectives with Educational Outcomes:

The Common Student Learning Outcomes for the Core Curriculum in the University System of Georgia (USG) are available online at http://www.usg.edu/academics/programs/core_curriculum/outcomes.phtml. They are numbered I through V.

The VSU General Education Outcomes are available online at

<http://www.valdosta.edu/academic/VSUGeneralEducationOutcomes.shtml>. They are numbered 1 through 8.

The Biology Undergraduate Educational Outcomes are available in the VSU Undergraduate Catalog (page 113) and are numbered 1 through 5.

Course objectives (1) through (7) relate to USG Common Student Learning Outcomes II and IV; VSU General Education Outcomes 5 and 7; and Biology Undergraduate Educational Outcomes 2, 3, 4, and 5.

Course objectives (8) through (12) relate to USG Common Student Learning Outcome IV, VSU General Education Outcome 5, and Biology Undergraduate Educational Outcome 1. In addition, course objective (12) relates to VSU General Education Outcome 3.

Course objectives (13) and (14) relate to USG Common Student Learning Outcomes II and IV; VSU General Education Outcome 5; and Biology Undergraduate Educational Outcome 1.

Course objective (15) relates to USG Common Student Learning Outcome IV, VSU General Education Outcome 3, and Biology Undergraduate Educational Outcome 1.

Course objective (16) relates to USG Common Student Learning Outcomes II and IV; VSU General Education Outcomes 3, 4, 5, and 7; and Biology Undergraduate Educational Outcomes 2 through 5.

Course objective (17) relates to USG Common Student Learning Outcomes I, II, and IV; VSU General Education Outcomes 3, 4, 5, and 7; and Biology Undergraduate Educational Outcomes 2 through 5.

Date	Topics/Lab Exercises (Additional notes for lab exercises)	Related material in text
Tues. Aug. 18	General course information <u>Assigned Reading: Textbook, Chapters 1 & 2</u>	Chap. 1 & 2
Tues. Aug. 18L	>LAB WILL NOT MEET ON THIS DAY	
Thurs. Aug. 20	Introduction to microbiology Biochemistry for understanding microbiology (Review Chapter 2 on your own) Structure of prokaryotic and eukaryotic cells	Chap. 1 Chap. 2 Chap. 3
Thurs. Aug. 20L	>LAB ORIENTATION >LABORATORY SAFETY, READ HANDOUT & P. IX-XV IN LAB MANUAL > <i>Program #1: The Microbial Universe</i> >MICROSCOPE CARE AND USE & MICROSCOPE CHECKLIST (Read before next lab) >EX. 1, MICROSCOPY (Read before next lab; answer questions on p. 9-11) >SUPPL. EX., HANDWASHING Wash your hands before leaving lab!	
Tues. Aug. 25	Structure of prokaryotic and eukaryotic cells	Chap. 3
Tues. Aug. 25L	>LAB ORIENTATION >LABORATORY SAFETY, READ HANDOUT & P. IX-XIV IN LAB MANUAL >MICROSCOPE CARE AND USE & MICROSCOPE CHECKLIST >EX. 5, PROTOZOA, ALGAE, & CYANOBACTERIA Prepare wet mounts of natural water samples. Draw examples of protozoa, algae, & cyanobacteria. Answer questions on pages 44-45, <u>except</u> question 4 on page 44.	
Thurs. Aug. 27	QUIZ #1 Structure of prokaryotic and eukaryotic cells	Chap. 3
Thurs. Aug. 27L	INTRODUCTION TO VARIOUS TYPES OF CULTURE MEDIA EX. 8, ASEPTIC TECHNIQUE	
Tues. Sept. 1	Structure of prokaryotic and eukaryotic cells Eukaryotic microorganisms Multicellular parasites	Chap. 3 Chap. 12
Tues. Sept. 1L	>FINISH EX. 8, ASEPTIC TECHNIQUE (Complete results/questions, p. 71-72.) >EX. 6, UBIQUITY OF BACTERIA Complete steps 1-7, but omit step 6. >EX. 7, FUNGI (Page 56, Fungi (mold) study. You will prepare the plates we will use next week. Work in groups of 4 & expose 2 plates of Sabouraud dextrose agar to air for 45 minutes. Expose one plate inside the building & the other plate outside. Incubate the plates at room temperature for one week.)	
Thurs. Sept. 3	Eukaryotic microorganisms Multicellular parasites	Chap. 12
Thurs. Sept. 3L	>EX. 10, SMEAR PREPARATION & EX. 11, SIMPLE (POSITIVE) STAINING (On a single slide, prepare a smear of <i>Saccharomyces cerevisiae</i> , and a separate smear of <i>Escherichia coli</i> . Use the technique for preparing smears from solid media [see Ex. 10, p. 88], & stain with crystal violet [see Ex. 11].) We will use paper towels instead of bibulous paper. Use this slide in the exercise below (SUPPL. EX.). >SUPPL. EX., EXAMINATION OF STAINED SLIDES AND WET MOUNTS OF THE YEAST <i>Saccharomyces cerevisiae</i> (A FUNGUS) AND THE BACTERIUM <i>ESCHERICHIA COLI</i> (Hand in your drawings to the instructor at the end of lab, 15 points) (CONTINUED ON NEXT PAGE.....)	

Date	Topics/Lab Exercises	Related material in text
Thurs. Sept. 3L	<p>(.....CONTINUED FROM PRECEDING PAGE)</p> <p>>ADDITIONAL SIMPLE STAIN - MOUTH SWAB (Directions: Using a sterile swab, swab your gums,the inside of your cheek, and your teeth. Deposit collected sample onto a dry slide. Allow slide to air dry. Then gently heat fix. Stain with methylene blue for 1 min. Wash gently and blot dry. Examine the slide using the low, high dry, and oil immersion objectives. Look for epithelial cells and oral bacteria. Using the extra space on p. 97, make a drawing of the specimen as it appears with the oil immersion objective.)</p>	
Tues. Sept. 8	<p>Dynamics of microbial growth Microbial metabolism (selected topics)</p>	<p>Chap. 4 Chap. 6</p>
Tues. Sept. 8L	<p>>EX. 9, PURE CULTURE TECHNIQUES, STREAK-PLATE METHOD ONLY (We will use Method B, the Quadrant streak – Use swab in tube from Ex. 6)</p> <p>>FINISH EX. 6, BACTERIA (Complete results/questions, p. 49-51) (If time permits, prepare smears from 3 different bacterial colonies from Ex. 6 plates on a single slide. Use the technique for preparing smears from solid media [see Ex. 10, p. 88], & stain [see Ex. 11].) Draw the organisms as they appear with the oil immersion objective on the bottom of p. 51.</p> <p>>EX. 7, FUNGI [Fungi (Mold) study - Do NOT open mold cultures in the lab. Open them only in the biological safety cabinet. You will use transparent tape to prepare slides of two or more different molds. The instructor will describe this procedure. Examine the slides using the low power (10x) objective and the high dry (40x) objective. Draw the specimens at both magnifications on the lab report. Also record a description of the appearance of the fungal colonies. Complete drawings/questions, p. 59-60.]</p>	
Thurs. Sept. 10	<p>QUIZ #2 Microbial metabolism (selected topics)</p>	<p>Chap. 6</p>
Thurs. Sept. 10L	<p>><i>Program #3: Metabolism</i></p> <p>>Finish EX. 9, STREAK-PLATE TECHNIQUE (repeat, if necessary) (Complete results, part 1, page 81; answer questions 1, 3, 6 & 8, pages 82-83.)</p> <p>>EX. 12, NEGATIVE STAINING (We will use the method in Fig. 12.1. Omit step 4.)</p>	
Tues. Sept. 15	<p>Prokaryotic Diversity (selected tables) DNA replication, transcription, & translation</p>	<p>Chap. 11 Chap. 7</p>
Tues. Sept. 15L	<p>>EX. 14, GRAM STAINING (Prepare smears from nutrient agar slant cultures as described on p.88 of lab manual. Complete drawings/questions, p. 111-114; omit questions 1 & 2 on p. 114.)</p> <p>>DISTRIBUTION OF GENERAL UNKNOWN CULTURES (RECORD THE GENERAL UNKNOWN #) (Prepare subcultures/stocks & gram stain. Record dates, work done, drawings, etc. on your own unknown record sheet.) You may also want to record the results on the descriptive chart on page 243 in the lab manual. During the next few lab periods, you will use your unknown in each of the stains (Gram, acid fast, & endospore stains), so that you will be completing EX. 36, MORPHOLOGICAL STUDY OF UNKNOWN BACTERIUM, as you proceed. <u>Please read EX. 36.</u></p> <p>>YOUR LAB REPORT ON THIS GENERAL UNKNOWN (which is due on Nov. 5) should be organized in a thin folder that contains the following: (i) a well-organized and complete copy of your unknown record sheets, including your drawings, (ii) a <u>neat and complete</u> copy of the descriptive sheet (p. 243 in lab manual) with the results of all of the tests performed (do not make your own table—use the one in the lab manual or a photocopy of it), (iii) a statement of your conclusion about the identity of the unknown bacterium (based on EX. 41 and <i>Bergey's Manual of Determinative Bacteriology</i>, and (iv) a paragraph explaining & discussing the following: how you arrived at your conclusion, any test results that are inconsistent with your conclusion, & any additional tests that would allow you to more specifically identify your unknown. <u>Do NOT describe the methods used for performing the various tests in your report.</u></p>	
Thurs. Sept. 17	<p>EXAM #1</p>	

Date	Topics/Lab Exercises	Related material in text
Thurs. Sept. 17L	<p>>EX. 16, ACID-FAST STAINING (Ziehl-Neelsen method—please see procedure below. You will also perform this stain on your unknown. (Complete drawings/questions, p. 112-114; omit questions 1 & 2 on p. 114.) Record results for unknown on your record sheet.</p> <p>>EX. 16, ACID-FAST STAINING (Ziehl-Neelsen method procedure)</p> <p>Use 0.1% albumin solution instead of water for preparing the smears. On one slide prepare a smear of a mixture of <i>Mycobacterium smegmatis</i> & <i>Staphylococcus aureus</i>, as well as a separate smear of your unknown. Allow the smears to air dry, and then heat fix them. Put on gloves, and try to be neat. (You are responsible for cleaning up any spills of carbol fuchsin.) Cover the smears with a cut piece of paper towel that does not extend over the edges of the slide. Hold the slide with a clothespin or slide holder and soak the towel with carbol fuchsin. Heat the slide <u>intermittently</u> over the flame of the bunsen burner so that it “steams” for 5 minutes. Do NOT let the paper towel dry out—add more carbol fuchsin as needed. Allow the slide to cool and then remove the paper towel. Proceed with steps 2 through 7 as described in the lab manual in Figure 16.1 on page 110.</p>	
Tues. Sept. 22	DNA replication, transcription, & translation	Chap. 7
Tues. Sept. 22L	<p>>EX. 37, CULTURAL CHARACTERISTICS OF UNKNOWN BACTERIUM</p> <p>>EX. 36, MORPHOLOGICAL STUDY OF UNKNOWN BACTERIUM</p> <p>You will use your unknown for each of the following 3 procedures/tests:</p> <p>>(1) <u>Prepare a streak plate using your unknown culture</u> (see Ex. 9, use method B, quadrant streak)</p> <p>>(2) <u>Inoculate your unknown into a tube of fluid thioglycollate medium.</u> [See EX. 19, CULTIVATION OF ANAEROBES (Please read p. 133-135 to learn about oxygen requirements of microorganisms and about fluid thioglycollate medium.)]</p> <p>>(3) <u>Inoculate your unknown into a tube of motility medium.</u> [See EX. 17, MOTILITY DETERMINATION, TUBE METHOD ONLY. You will also test <i>Staphylococcus aureus</i> and <i>Proteus vulgaris</i> as controls in EX. 17.]</p> <p>>EX. 15, SPORE STAINING (Schaeffer-Fulton Method) You may also perform this stain on your unknown. (Complete drawings/questions, p. 111-114; omit questions 1 & 2 on p. 114.) Record results for unknown on record sheet.</p>	
Thurs. Sept. 24	Viruses	Chap. 13 & 14
Thurs. Sept. 24L	<p>>Record results from cultures inoculated on Tues., Sept. 22.</p> <p>(1) Record a description (including size) of isolated colonies of your unknown bacterium on your record sheet. Information about colony description can be found in EX. 37 on page 248.</p> <p>(2) Draw or record description of fluid thioglycollate tube, and determine oxygen requirement of your unknown bacterium.</p> <p>(3) Draw or record description of motility tube, and determine motility of unknown.</p> <p>>COMPLETE EX. 17, MOTILITY DETERMINATION, TUBE METHOD (Record results for <i>S. aureus</i> and <i>P. vulgaris</i>, p. 119. Answer questions 1, 2, 3, 5, & 6, p. 119-120.)</p> <p>>EX. 30, ULTRAVIOLET LIGHT: LETHAL EFFECTS (This exercise will be slightly modified.)</p>	
Tues. Sept. 29	Viruses	Chap. 13 & 14
Tues. Sept. 29L	<p>>FINISH EX. 30, ULTRAVIOLET LIGHT, LETHAL EFFECTS (Observe demonstration, record results on p. 30, and answer questions on p. 203-204.)</p> <p>>SUPPL. EX., VARIOUS MEDIA</p> <p>(CULTURES FOR DESOXYCHOLATE AGAR AND PHENYL ETHYL ALCOHOL AGAR: <i>Escherichia coli</i>, <i>Staphylococcus aureus</i>, <i>Pseudomonas aeruginosa</i>, & unknown) (CULTURES FOR BLOOD AGAR: <i>E. coli</i>, <i>S. aureus</i>, <i>Bacillus cereus</i>, & unknown)</p> <p>>A throat culture will also be made on a blood agar plate.</p> <p>><u>HAND IN 3 STAPLED ARTICLES IN A FOLDER (FORMAL ARTICLES FROM PEER-REVIEWED, PROFESSIONAL, SCIENTIFIC JOURNALS – 30 POINTS). These articles will be used to prepare your oral presentation. PLEASE NOTE THAT FULL CREDIT WILL NOT BE GIVEN IF APPROPRIATE ARTICLES ARE NOT HANDED IN INITIALLY.</u></p>	

Date	Topics/Lab Exercises	Related material in text
Thurs. Oct. 1	QUIZ #3 Bacterial genetics (selected topics)	Chap. 8
Thurs. Oct. 1L	>FINISH EX. 30, ULTRAVIOLET LIGHT, LETHAL EFFECTS (Observe demonstration, record results on p. 30, and answer questions on p. 203-204.) >FINISH SUPPL. EX., VARIOUS MEDIA (Complete table with exercise & answer questions.) Record results for unknown on unknown record sheet. Consider the following question: Is the pattern of growth of your unknown on the selective media consistent with the results you obtained in the Gram stain? If not, you will need to repeat the gram stain with a fresh culture.	
Tues. Oct. 6	Bacterial genetics (selected topics) Recombinant DNA & biotechnology Classification & Identification of Prokaryotes	Chap. 8 Chap. 9 Chap. 9, 10, & 11
Tues. Oct. 6L	>EX. 38, OXIDATION & FERMENTATION TESTS >EX. 39, HYDROLYTIC REACTIONS (In this exercise you will use tributyrin agar instead of spirit blue agar. A clear zone around the bacterial growth indicates a positive reaction for lipid hydrolysis on tributyrin agar.) >EX. 40, MULTIPLE TEST MEDIA (We will do <u>ONLY</u> the test for hydrogen sulfide production using SIM medium.) > <u>DISCUSSION ABOUT EX. 41 AND THE USE OF BERGEY'S MANUAL</u> BERGEY'S MANUAL OF DETERMINATIVE BACTERIOLOGY is on reserve in the library. You will need to consult it to help identify your unknown and to find out which additional tests might allow you to more specifically identify your unknown.	
Thurs. Oct. 8	Classification & Identification of Prokaryotes Control of microbial growth	Chap. 9, 10, & 11 Chap. 5 (required reading)
Thurs. Oct. 8L	>FINISH EX. 38, OXIDATION AND FERMENTATION TESTS, (<u>except Voges-Proskauer (VP) test must be incubated until the next lab.</u>) >FINISH EX. 39, HYDROLYTIC REACTIONS; >FINISH EX. 40. (SIM medium only) Record results for unknown on record sheet. Be sure that you understand the chemical basis for each test performed, as well as how each test is interpreted. > <u>DISCUSSION ABOUT EX. 41 AND THE USE OF BERGEY'S MANUAL</u> LAB REPORT ON GENERAL UNKNOWN IS DUE ON NOV. 5; SEE INFORMATION FOR SEPT. 15	
Tues. Oct. 13	Control of microbial growth Antimicrobial medications	Chap. 5 (required reading) Chap. 21 (required reading)
Tues. Oct. 13L	>FINISH VOGES-PROSKAUER (VP) TEST FROM EX. 38. >SUPPL. EX., ENUMERATION OF BACTERIA ASSOCIATED WITH FRESH PRODUCE (SPREAD-PLATE TECHNIQUE) >WORK DILUTION PROBLEMS (SEE PAGES IN COURSE PACKET) >EX. 32, EFFECTIVENESS OF ALCOHOL > <i>Program #9: Microbial Control</i>	Chap. 5 (required reading)
Thurs. Oct. 15	QUIZ #4 Antimicrobial medications Innate immunity	Chap. 21 (required reading) Chap. 15
Thurs. Oct. 15L	>FINISH SUPPL. EX., BACTERIA ASSOCIATED WITH FRESH PRODUCE (Record results on board and on your copy of exercise.) >WORK DILUTION PROBLEMS (SEE PAGES IN COURSE PACKET) >FINISH EX. 32, EFFECTIVENESS OF ALCOHOL (Record results on board & on p. 213; answer questions on p. 214.)	
Tues. Oct. 20	FALL BREAK	

Date	Topics/Lab Exercises	Related material in text
Thurs. Oct. 22	Innate & adaptive immunity	Chap. 15 & 16
Thurs. Oct. 22L	> <i>Program #12, Microbes and Human Diseases</i> >WORK DILUTION PROBLEMS Host-Microbe Interactions Epidemiology	Chap. 17 (required reading) Chap. 20 (required reading)
Tues. Oct. 27	Adaptive immunity	Chap. 16
Tues. Oct. 27L	>VIDEO SEGMENTS ABOUT ANTIBIOTIC RESISTANCE >SUPPL. EX., PLAQUE ASSAY OF A PHAGE SUSPENSION >EX. 34, EVALUATION OF ANTISEPTICS (This exercise will be slightly modified.) >EX. 33, KIRBY-BAUER METHOD >WORK DILUTION PROBLEMS	
Thurs. Oct. 29	EXAM #2	
Thurs. Oct. 29L	>VIDEO SEGMENTS ABOUT ANTIBIOTIC RESISTANCE (additional) >FINISH SUPPL. EX., PLAQUE ASSAY OF A PHAGE SUSPENSION (Complete results on board & on your copy of exercise.) >FINISH EX. 34, ANTISEPTICS (Record results on board & on p. 227. Answer questions on p. 227 & 228.) >FINISH EX. 33, KIRBY-BAUER METHOD (Record results on board & on p.221; answer questions on p. 222.) >WORK DILUTION PROBLEMS.	
Tues. Nov. 3	Applications of immune responses Immunologic Disorders Host-Microbe Interactions Epidemiology	Chap. 19 Chap. 18 (required reading) Chap. 17 (required reading) Chap. 20 (required reading)
Tues. Nov. 3L	>WORK ELISA AND IMMUNOFLUORESCENCE PROBLEMS (COURSE PACKET) STUDENT ORAL PRESENTATIONS	
Thurs. Nov. 5	SUPPL. EX., <i>Staphylococcus aureus</i> EXPERIMENT Skin & wound infections Respiratory system infections	Chap. 23 & 24 (required reading) Chap. 12, section 12.5 (required reading) Chap. 22 (required reading)
Thurs. Nov. 5 L	SUPPL. EX., <i>Staphylococcus aureus</i> EXPERIMENT >SUPPL. EX., BACTERIOLOGICAL ANALYSIS OF URINE (RECORD UNKNOWN #) >SUPPL. EX., PROTOZOA AND ANIMAL PARASITES HAND IN LAB REPORT ON GENERAL UNKNONWN	
Tues. Nov. 10	QUIZ #5 Respiratory system infections Digestive system infections	Chap. 22 (required reading) Chap. 25 (required reading)
Tues. Nov. 10L	>CONTINUE SUPPL.EX., <i>S. aureus</i> EXPERIMENT (We will omit the Kirby-Bauer antibiotic sensitivity tests. Remember to inoculate plate of tryptic soy agar with presumptive <i>S. aureus</i> isolate for Thurs. lab, EX. 56.) >CONTINUE SUPPL. EX., URINE (We will omit the Kirby-Bauer antibiotic sensitivity tests.) >EX. 43, ENTEROTUBE II SYSTEM >FINISH SUPPL. EX., PROTOZOA AND ANIMAL PARASITES >QUESTIONS ABOUT ELIZA AND IMMUNOFLUORESCENCE PROBLEMS (COURSE PACKET)	

Date	Topics/Lab Exercises	Related material in text
Thurs. Nov. 12L	>FINISH SUPPL. EX., <i>S. aureus</i> >EX. 56, SLIDE AGGLUTINATION (LATEX) TEST: FOR <i>S. aureus</i> IDENTIFICATION PLEASE NOTE: We will use reagents from a different manufacturer than those described in the lab manual. The instructor will give directions for this test at the beginning of the lab. RECORD RESULTS from <i>S. aureus</i> EX. & latex agglutination test on board & in chart. >FINISH SUPPL. EX., URINE & EX. 43, ENTEROTUBE – RECORD RESULTS ON BOARD; TURN IN LAB REPORT AT END OF LAB	
Tues. Nov. 17	Digestive system infections Foodborne illness Genitourinary infections	Chap. 25 (required reading) Chap. 12, section 12.5 (required reading) Chap. 32, section 32.4 (required reading) Chap. 26 (required reading)
Tues. Nov. 17L	LAB EXAM	
Thurs. Nov. 19	HIV infection & AIDS Nervous system infections	Chap. 29 (required reading) Chap. 27 (required reading)
Thurs. Nov. 19L	STUDENT ORAL PRESENTATIONS	
Tues. Nov. 24	EXAM #3	
Tues. Nov. 24L	STUDENT ORAL PRESENTATIONS	
Thurs. Nov. 26	THANKSGIVING HOLIDAY	
Tues. Dec. 1	Nervous system infections Blood & lymphatic infections	Chap. 27 (required reading) Chap. 28 (required reading)
Tues. Dec. 1L	STUDENT ORAL PRESENTATIONS	
Thurs. Dec. 3	QUIZ #6 Blood & lymphatic infections	Chap. 28 (required reading)
Thurs. Dec. 3L	STUDENT ORAL PRESENTATIONS	
Wed. Dec. 9	COMPREHENSIVE FINAL EXAM (10:15 am -12:15 pm)	

ADDITIONAL INFORMATION

Course content: We will not be covering all of the material in the textbook and lab manual. Students are encouraged to read those sections of the textbook and lab manual that pertain to the topics covered. In addition, students are especially encouraged to make use of the illustrations, tables, review questions, and chapter summaries. **Reading of some chapters in the textbook is required, as noted in the schedule. In addition, special assigned readings from the textbook, lab manual or other sources may be announced in class or lab.**

Laboratory:

- Students are expected to attend ALL laboratory sessions, to be on time at the beginning of the period, and to complete all assigned laboratory exercises. There will be no makeups for the laboratory exercises.
- Microscopes will be assigned and spot checks will be made to ensure that they are clean and properly stored. Misuse or mishandling of the microscopes will result in the loss of points (20 points per occurrence). After you have finished using your microscope, please consult the "microscope checklist" to be certain that you have followed the proper procedures.
- Students must prepare for each day's lab work **before** coming to the laboratory. Preparation includes reading the laboratory exercises for the day, as well as any additional materials in the course packet and comments in the syllabus concerning the day's labs. Proper preparation will allow students to complete the exercises in an efficient and informed manner.

4. Each student is expected to record the results of the lab exercises and to answer the related questions, as noted in the syllabus. In some cases, **lab reports** are to be handed in as indicated in the course schedule. If a student misses a portion of the lab work relating to a required lab report, the student's report will be worth a maximum of 85% of the points allotted for the report. For the drawings (Sept. 3), each student must prepare and turn in his/her own work/report. For the other reports [general unknown (Nov. 5) and urine unknown (Nov. 12)], students may prepare their lab reports individually, or they may work with their lab partners/group and turn in joint reports.

5. One **lab exam** will be given. It will include dilution problems, material covered during the lab, and assigned questions in the lab manual or course packet. If a student misses the lab exam, the instructor should be notified promptly. Arrangements for a make-up lab exam must be made within one week after a student misses the lab exam; otherwise, a make-up exam will not be given. The make-up exam will be worth 85% of the points allotted for the regularly-scheduled exam.

6. **Oral presentations:** During the laboratory portion of the course, each student will be required to give an 8- to 9-minute **oral report** on a topic/article selected from a list provided by the instructor. Two additional minutes will be allotted for answering questions from the audience. Students will draw numbers to indicate the order in which they will select articles and give their presentations. Once a topic is chosen it may not be changed. Students should search databases in GALILEO to find related articles in the scientific literature. Some peer-reviewed, scientific and medical journals are available in the Odum Library and/or online. Additional articles may be obtained through interlibrary loan; however, this process takes time. At least three formal articles (including the original article chosen) from PEER-REVIEWED, PROFESSIONAL JOURNALS must be used to prepare the presentation. Only one of these articles may be a review article; the remaining two articles must be primary articles or case studies. Complete, stapled (or paper-clipped) copies of these articles must be placed in a folder & handed in on Sept. 29. These copies will be returned to the student in a timely manner; however, the folder with the articles must again be provided to the instructor on the day of the presentation. Articles must list references at the end, and these references must be cited within the article. Informal articles, Web sites, internet articles or fact sheets, newspaper articles, magazine articles, book reviews, and letters to the editor are NOT acceptable. Students should make every effort to ensure the accuracy of the information in their reports. Should a report contain inaccurate information, the presenter should expect to be questioned about it as well as about the source of the information.

For their presentations, students are strongly encouraged to use Powerpoint software. Students using Powerpoint must use a version that is compatible with the version available in the microbiology lab. If you are in doubt, please bring your Powerpoint presentation to the lab at least one week before the day of your presentation to verify that it will run. If you do not check your presentation ahead of time, you are responsible for having a backup method for showing your illustrations. Full-size print-outs of your Powerpoint slides are useful as backups, since they may be shown using the ELMO projector. Students electing not to use Powerpoint should use other illustrations. Illustrations may be placed on a large poster or they may be shown on the ELMO projector. Transparencies and handouts may also be used.

There will be no makeups for the oral presentations. On the day of the presentation, the student must turn in the following immediately after the presentation: (i) a legible copy of any illustrations (including text) used during the presentation, (ii) copies of the three references used, and (iii) any note cards or papers used during the presentation.

ADDITIONAL EMPHASIS: IF YOU WANT A GOOD SCORE ON YOUR PRESENTATION, YOU MUST FOLLOW THE GUIDELINES ON THE PROVIDED EVALUATION FORM. A STUDENT WHOSE REPORT DOES NOT FOCUS ON THE PRIMARY SCIENTIFIC ARTICLE OR CASE STUDY WILL RECEIVE A SCORE OF ZERO.

Attendance, participation, and tardiness: In accordance with VSU policy, attendance and participation will be checked in the laboratory and in class. The remainder of this paragraph outlines the lab/oral report attendance policy. Attendance is required during ALL labs and oral report periods. A student who misses more than 5 lab/oral presentation periods will receive a grade of "F" in the course. A student who has perfect lab/oral report attendance or who misses (or fails to complete) only one lab/oral report period will receive 25 bonus points. A student who misses (or fails to complete) two to three laboratory/oral report periods will receive 10 bonus points. Missing (or failing to complete) additional laboratory/oral report periods will result in the **loss of points** as follows. Fifteen points will be deducted for the fourth missed (or incomplete) laboratory/oral report period; and 25 additional points will be deducted for the fifth missed (or incomplete) laboratory/oral report period. Missing more than 5 lab/oral report periods will result in a failing grade. Students who are habitually late for lab or oral report periods will be marked late. Coming late to lab or oral report periods three times will be counted as one absence. A student who is habitually late will be given a warning, after which each late arrival will be counted as one absence. **There will be no makeups for the laboratory exercises or student presentations.**

Examinations and quizzes given during class periods:

1. Examinations will cover material covered during **both the class and laboratory portions of the course.** The first three exams will be worth 150 points each. The final exam will be worth 170 points. Examinations will begin promptly on the times and dates indicated on the class schedule. The final examination will be comprehensive in that it will include material covered throughout the course. Exams 2 and 3 will be comprehensive in that up to 25% of the points on the exam may cover material presented before any earlier examination. Exams may include questions of the multiple-choice, matching, true-false, short-answer, and essay formats. A student who misses an examination should notify the instructor promptly. Arrangements for a make-up exam must be made within one week after the exam date; otherwise, a make-up exam will not be given. Make-up examinations

may consist entirely of questions of the short answer and essay formats. Make-up examinations for exams 1, 2, and 3 will be worth 125 points rather than 150 points each.

2. STUDENTS ARE REQUIRED TO BRING TWO #2 PENCILS AND ERASERS TO ALL EXAMINATIONS. THE INSTRUCTOR WILL NOT PROVIDE PENCILS.

3. In addition to the examinations, six short quizzes will be given. Each quiz will be worth 25 points, and the lowest two quiz scores (which could be zeros if a student misses two quizzes) will be dropped. Thus a student may earn up to 100 points on the quizzes. **IF A QUIZ IS GIVEN AT THE BEGINNING OF CLASS, STUDENTS MUST BE ON TIME FOR CLASS IN ORDER TO TAKE THE QUIZ. THERE WILL BE NO MAKE-UPS FOR MISSED QUIZZES.**

Late assignments & failure to turn in assignments:

Please make a calendar noting when assignments and lab reports are due. Turning in an assignment/report 1-4 days late will result in a deduction of 20% of the points for that assignment. Turning in an assignment 5-9 days late will result in a deduction of 50% of the points for that assignment. **No points will be awarded for an assignment that is late by more than 9 days.** Students will not be notified by the instructor for failing to turn in course assignments. Late assignments must be given DIRECTLY to the instructor. They may NOT be placed in the instructor’s mailbox. It is also NOT ACCEPTABLE to slide late assignments under the instructor’s office door.

Grading: Points for the course are allocated as follows:

<u>EXAM 1 (Sept. 17)</u>	150	POINTS
<u>EXAM 2 (Oct. 29)</u>	150	POINTS
<u>EXAM 3 (Nov. 24)</u>	150	POINTS
<u>EXAM 4 (FINAL EXAM-Dec. 9)</u>	170	POINTS
<u>QUIZZES (Aug. 27, Sept. 10, Oct. 1 & 15, Nov. 10, & Dec. 3)</u>	100	POINTS
<u>LAB REPORT (Drawings) (Sept. 3)--- (course objective 9)</u>	15	POINTS
<u>REFERENCES FOR ORAL PRESENTATION (Sept. 29)--- (course objective 15)</u>	30	POINTS
<u>LAB EXAM (Nov. 17)</u>	90	POINTS
<u>LAB REPORT ON GENERAL UNKNOWN (Nov. 5)--- (course objectives 8-12; & 14)</u> ...	40	POINTS
<u>LAB REPORT ON URINE UNKNOWN (Nov. 12)--- (course objectives 8; 10-12; & 14)</u> ..	15	POINTS
<u>ORAL PRESENTATION (Nov. 3-Dec. 3)--- (course objectives 16 & 17)</u>	90	POINTS

TOTAL FOR COURSE	1000	POINTS

Students should carefully read the “Attendance, Participation, and Tardiness” and the “Late Assignments and Failure To Turn in Assignments” sections of the syllabus.

There are FOUR REQUIREMENTS TO PASS the course:

1. Do not miss (or fail to complete) any more than 5 laboratories or oral report periods.
2. Complete and turn in all lab assignments and lab reports.
3. Obtain at least 40% of the points for **EACH** lab assignment and lab report.
4. Have a total of 600 or more points for the course.

The grade is "F" for a student who obtains less than 600 total points **or** fails to meet one of the other requirements for passing the course (see above list).

GRADING SCALE: 900-1000, A 800-899, B 700-799, C
 600-699, D < 600, F