Section 21767

Microbiology Course Outline, Fall 2008

Pam MacKay, Instructor

Week	Day/Date	Lecture and discussion topics	Reading assignments in Bauman text	Cyber-Ed (available on computers in Academic Commons--all optional)	Lab activities (Lab manual page numbers are in parentheses)
1	Tues., 8/26	A Brief History of Microbiology	Chapter 1 (*Chapter 4 helpful for lab)*		Lecture will take up most of time today Scope & group assignments
1	Thur., 8/28	The Chemistry of Microbiology part 1	Chapter 2	Biochemistry	Use of the microscope (3-9)
2	Tues., 9/2	The Chemistry of Microbiology part 2	Chapter 2	Biochemistry	Parasitology - Phylum Protozoa: The Amebae (11-13)
2	Thur., 9/4	Cell Structure and Function	Chapter 3 *(Chapter 23 helpful for lab)*	Cell structure and function Inside the cell The plasma membrane *(Protista helpful for lab)*	Parasitology - Phylum Protozoa: The Flagellates (14-20)
3	Tues., 9/9	Cell structure and function, continued Microbial Metabolism	Chapter 5	Cell respiration	Parasitology - Phylum Protozoa: The Ciliates and the Apicomplexans (21-23, 24-28)
3	Thur., 9/11	LECTURE EXAM #1 (covers chapters 1, 2, and 3)			Parasitology - Phylum Platyhelminthes Class Cestoidea (31-36) Go over Laboratory Safety Rules (55-56) Discuss Aseptic technique (57) Discuss Laboratory growth media (58)
4	Tues., 9/16	Microbial Metabolism, continued	Chapter 5	Fermentation Start on photosynthesis	Parasitology - Phylum Platyhelminthes Class Trematoda (37-42) Staining techniques for bacteria: Smear and heat fix Simple stain Omnipresence of microorganisms
4	Thur., 9/18	Microbial Metabolism, continued Microbial Nutrition and Growth	Chapter 5 Chapter 6	Photosynthesis, continued	Parasitology - Phylum Nematoda (42-51) Staining techniques for bacteria: The Gram's stain The negative stain
5	Tues., 9/23	Controlling Microbial Growth	Chapter 9 Chapter 10		LAB EXAM #1 - Parasitology labs (8/27 - 9/24) Staining techniques for bacteria: The capsule stain The spore stain

5	**Thur., 9/25**	**Controlling Microbial Growth**	**Chapter 9 Chapter 10**		**Staining techniques for bacteria: The acid-fast stain The metachromatic granule stain**
6	**Tues., 9/30**	**LECTURE EXAM #2 (covers chapters 5, 6, 9, and 10)**			**Inoculations: Omnipresence of microorganisms Isolation of bacteria by dilution techniques Selective and differential media**
6	**Thur., 10/2**	**Microbial Genetics**	**Chapter 7**	**From DNA to protein**	**Go over results from prior inoculations New inoculations: Utilization of unusual sources of nitrogen and carbon Litmus milk reactions Hydrolysis of gelatin Production of hydrogen sulfide (TSI and SIM) Production of indole (SIM) Motility**
7	**Tues., 10/7**	**Recombinant DNA technology**	**Chapter 8**		**LAB EXAM #2 - Aseptic technique and lab safety rules, bacterial staining techniques Go over results from prior inoculations New inoculations: Hydrolysis of urea Fermentation of carbohydrates Production of oxidase Detection of catalase Hydrolysis of starch and casein Mannitol salt agar Production of hemolysin**
7	**Thur., 10/9**	**Infection, Infectious Diseases, and Epidemiology Nonspecific Lines of Defense**	**Chapter 14 Chapter 15**	**Blood and immunity**	**Go over results from prior inoculations New inoculations: Reduction of nitrates MR-VP tests**

8	**Tues., 10/14**	**LECTURE EXAM #3 (covers chapters 7 and 8)**			**Go over results from prior inoculations** **New inoculations:** **Oxygen and the growth of bacteria** **Biofilms** **Physical methods of control: heat** **Begin growing unknown filamentous fungi** **BRING IN MOLDY FOOD FROM HOME**
8	**Thur., 10/16**	**Specific Defense: The Immune Response**	**Chapter 16**	**Blood and immunity** **The fungi**	**Go over results from prior inoculations** **Continue the biofilms experiment** **Observe growth of fungi**
9	**Tues., 10/21**	**Specific Defense: The Immune Response, continued** **Immunization and Immune Testing**	**Chapter 16** **Chapter 17**	**Blood and immunity**	**LAB EXAM #3 - Bacterial physiology I (through MR-VP results)** **Go over results from last time** **Identify fungal unknowns and turn in reports** **New inoculations:** **Physical methods of control: ultraviolet radiation** **Chemical methods of control: disinfectants and antisepsis** **Chemical methods of control: antimicrobial drugs**
9	**Thur., 10/23**	**Immune testing (serology) continued** **Hypersensitivities, Autoimmune Diseases, and Immune Deficiencies**	**Chapter 17** **Chapter 18**		**Go over results from last lab** **Determination of titer: plate counts**
10	**Tues., 10/28**	**LECTURE EXAM #4 (covers chapters 14, 15, and 16)**			**Go over results from last lab - titer plate counts and calculations** ***Determine titer by hemacytometer & optical density methods (64-67)** **New inoculations:** **Effectiveness of hand scrubbing** **Bacteria of the skin**
10	**Thur., 10/30**	**Hypersensitivities, Autoimmune Diseases, and Immune Deficiencies, continued**	**Chapter 18**		**Go over results from previous lab** **New inoculations:** **Bacterial analysis of water: presumptive test**

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11	Tues., 11/4	Characterizing and Classifying Prokaryotes Pathogenic Gram-Positive Cocci and Bacilli	Chapter 11 Chapter 19	Viruses and bacteria	Go over results from last lab New inoculations: Bacterial analysis of water: confirmed test Bacteria of the respiratory tract Bacteria of the mouth Bacteria of the urogenital tract
11	Thur., 11/6	LECTURE EXAM #5 (covers chapters 17-18)			Go over results from last lab Rapid identification methods
12	Tues., 11/11	Pathogenic Gram-Negative Cocci and Bacilli	Chapter 20		Go over results from last lab, if any Review for lab exam
12	Thur., 11/13	Pathogenic Gram-Negative Cocci and Bacilli, continued	Chapter 20		LAB EXAM #4 - Bacterial physiology II - from new inoculations of 10/14 through rapid identification methods and including fungi
13	Tues., 11/18	Mycoplasmas, Rickettsias, Chlamydias, Spirochetes, and Vibrios	Chapter 21		Receive mixed culture of unknowns and do streak plates for isolation
13	Thur., 11/20	LECTURE EXAM #6 (covers chapters 11, 19-21)			Find isolated colonies
14	Tues., 11/25	Characterizing and Classifying Viruses, Viroids, and Prions	Chapter 13	Viruses and bacteria	Work on unknowns
14	Thur., 11/27	THANKSGIVING HOLIDAY - NO VVC	THANKSGIVING HOLIDAY - NO VVC	THANKSGIVING HOLIDAY - NO VVC	THANKSGIVING HOLIDAY - NO VVC
15	Tues, 12/2	Pathogenic DNA viruses	Chapter 24		Work on unknowns
15	Thur., 12/4	Pathogenic RNA Viruses	Chapter 25		Work on your unknowns and finish reading all results. Do any last-minute staining.
16	Tues., 12/9	Pathogenic RNA Viruses, continued	Chapter 25		UNKNOWN DUE AT END OF LAB WITH FULL REPORT Make sure all of your lab materials are properly discarded.
16	Thur., 12/11	EXAM #7. (covers chapters 13, 24, 25)			No lab today