

SPRING 2016 BIOLOGY 229 (MICROBIOLOGY COURSE OUTLINE) – Version 7 – 4/9/16

	DATE	Class reading from textbook	Class Topic	Lab Topic (Text reading is in the handout for each lab)
Week 1	1/11	1.1-1.9	Introductions; Introduction to Microbiology	The microbial toolbox #1 (Culturing microbes and Generating Pure Cultures)
		4.1-4.22	Prokaryotic Cell Structure & Function	
		4.23; 4.28-4.41	Prokaryotic Cell Structure & Function	
Week 2	1/18		MLK day – no class	The microbial toolbox #2 (Counting and Visualizing microbes)
		9.1-9.14	Microbial Growth and Nutrition	
		cont.	Microbial Growth and Nutrition	
Week 3	1/25		SNOW DAY	Measuring Bacterial Growth
		SR1	Control of Microbial Growth	
		21.11-21.14	Antibiotics	
Week 4	2/1	SR2; 19.14	Antibiotic resistance	Factors that affect growth and Antibiotic sensitivity assays
			Antibiotic resistance	
		Paper 1 (possibly)	Antibiotic paper discussion Catch up; K-B: review lab 4	
Week 5	2/8	SR3; 7.1-7.9; 7.11	Metabolism: Introduction to energy	Exam 1 (Weeks 1-4)
			Reassigned lab work to Week 6	
			Metabolism: Introduction to energy	
Week 6	2/15	7.12-7.13; 7.16; 21.1-21.5 (optional)	Metabolism: Generation of energy – Fermentation and chemotrophy (moved to Wed b/c of snow)	Unknown isolates identification lab (Biochemical tests); Unknown isolates identification lab (DNA sequencing) – moved to Week 7 because of snow
		7.17-7.24	Metabolism: Generation of energy –Chemo(organo)trophy Moved to lab time because of snow)	
		7.25-7.29	Metabolism: Generation of energy – Chemo(litho)trophy	
Week 7	2/22	Paper 2	Metabolism paper discussion	Analyze unknown isolates DNA sequence
		Paper 2	Metabolism paper discussion	
		TBD	Biogeochemistry	
Week 8	2/29	Test pg 230 (global control – 231); SR6	Persisting and surviving: Gene regulation in bacteria	Exam 2 (Weeks 5-7)
			Reassigned time	
		4.37; SR4	Persisting and surviving: Biofilms (moved to lab on 3/16 because of snow)	
Week 9	3/7	Spring Break	No class	No lab
			No class	
			No class	
Week 10	3/14		No class (do reading from snow day on 3/16 in prep for Wednesday)	Quizam (Week 8); Discussion of group work for lab report; Finish class material from week 8 because of snow
		17.1-17.3; SR5	Microbial Ecology: Ruminants and Agrobacterium	
			Microbial Ecology: Ruminants and Agrobacterium	
Week 11	3/21	19.1-19.2	Microbial Pathogenesis: General Principles	Pathogenesis Lab Week 1
			Microbial Pathogenesis: Tools	
		19.3-19.7	Microbial Pathogenesis: Attachment and invasion	
Week 12	3/28		Microbial Pathogenesis: Attachment and invasion; Attend Biology seminar at noon in A-001 (optional)	Pathogenesis Lab Week 2
		19.15-19.19	Toxins	
			Finish toxins	
Week 13	4/4	18.1-18.8; 18.9; pg 390-91; 19.8-9	Microbial Pathogenesis: Host response	Pathogenesis Lab Week 3
			No class (RJ at a conference) Optional Draft of Lab report due	
Week 14	4/11	18.12-18.16; 18.18-18.19; 19.12	Microbial Pathogenesis: Host response	Exam 3 (Weeks 8, 10-13)
			Class time reassigned for exam later in the day	
		6.1-6.25	Virus Structure & Function	
Week 15	4/18		Virus Structure & Function; Lab report due	Paper 3 – Phage therapy discussion
		Chapter 20	Virus Structure & Function	
		Chapter 20	Epidemiology	
	4/25 (9-12)	FINAL EXAM	Final exam - Cumulative	

Reading guide

9.1-9.14

Section 9.4: **SKIP** (also related to this skip microtopic on page 193, and Fig 9.6) – The only term you needed from this section for future sections is “interdivision time” which is the time it takes one cell to become two cells.

Section 9.7: This is framed in reference to eukaryotic cell cycle, which many of you have seen before. We are just focused on bacterial cell cycle. Note that the statement that intrinsic events in cell cycle take 60 minutes is not true for all bacteria. Also, you can skip last paragraph in this section.

Section 9.9: **SKIP** – I will give a mini-lecture on this topic in class that makes the mathematics behind bacterial growth more apparent.
Growth rate = change in cell number / change in time

7.12-7.13; 7.16; 21.1-21.5

Figure 7.4 – there is a double bond missing in PEP

7.17-7.24

Figure 7.13 – ignore middle panel

7.25-7.29