

Microbiology 6020
 Microbial Physiology and Biochemistry
 Autumn 2022
 MoWeFr 11:30AM - 12:25PM
 Bio Sci 684

8-24	W	Introduction—microbes take pride in their origins
8-26	F	Bacterial <i>oriC</i> and <i>E. coli</i> DnaA
8-29	M	Genome skewing, finding archaeal origins and initiators
8-31	W	Origins and initiators
9-2	F	The cell cycle/Control of initiation
9-5	M	Labor day, no classes (offices closed).
9-7	W	Initiation Control continued
9-9	F	Chromosome organization and segregation
9-12	M	Continuing to PART ways.
9-14	W	Of cytoskeletons and Septation
9-16	F	Of cytoskeletons and Septation
9-19	M	Of cytoskeletons and Septation
9-21	W	Growth rate control.
9-23	F	Mopping up and review
9-26	M	Exam I (2 hrs)
9-28	W	Growth rate control
9-30	F	Growth rate control
10-3	M	Beyond EMP, sugar catabolism in bacteria and archaea
10-5	W	Real world glycolysis
10-7	F	Odd glycolysis continued
10-10	M	Fermentation, revisited, revised.
10-12	W	Fermentations etc.- Bioenergetics
10-14	F	Autumn break, no classes (offices open)
10-17	M	Bioenergetics, thermodynamics, electron transport
10-19	W	Primary dehydrogenases of <i>E. coli</i> and their....
10-21	Fterminal reductases
10-24	M	Enforcing the respiratory hierarchy-Arc
10-26	W	Enforcing the hierarchy-FNR and more Narly subjects
10-28	F	Mopping up and review
10-31	M	Exam II (2 hrs)
11-2	W	Hierarchy concludes
11-4	F	Controlling oxidative damage
11-7	M	Controlling oxidative damage
11-9	W	Unusual respirations, methanogenesis
11-11	F	Veteran's Day, no classes, offices closed.
11-14	M	Methanogenesis and acetogens
11-16	W	Bumblebees fly, acetogens grow
11-18	F	Balancing lipid degradation/synthesis
11-21	M	Balancing lipid degradation/synthesis

11-23	W	Thanksgiving break begins, no classes
11-25	F	Indigenous Peoples'/Columbus Day, no classes
11-28	M	Lipids
11-30	W	Amino acid biosynthesis
12-2	F	Amino acid biosynthesis
12-5	M	Nitrogen regulation and PII systems
12-7	W	Mopping up and Review
12-15	Th	Final exam 10-11:45 AM (in BioSci 684)

Microbiology 6020 is an examination of the physiology of bacterial and archaeal prokaryotic cells in the light of modern genomics, molecular biology, and biochemistry. The course is divided roughly into three sections dealing with the prokaryotic cell cycle, general principles and examples of catabolism, and finally examples of anabolic pathways and reactions.

M6020 aims to provide early-stage graduate students with concrete examples of gene products operating in the functional categories listed in most genome annotation papers. In much of the course we will use *E. coli* as a touchstone and well-known model, but also as a springboard to discuss how the diversity of microbial life has solved the same problems in very different ways. We will take integrated biochemical/molecular approach to understanding how Bacteria and Archaea solve the problems of life as a prokaryotic cell with readings based primarily on relatively recent reviews of the literature.

The grade will be composed of three exams (2 during class, and the final). Each is worth 33.33% of your final course grade. The exam format will be comprised of essays and short answers. The questions will require responses that are both factual and interpretative in theme. The dates are listed on the schedule. ***On exam days 120 minutes will be given for the exam beginning with the usual class period. If you cannot stay this length of time, please discuss this soon with Dr. Krzycki!***

Special problems that might interfere with taking the scheduled exam should be discussed well before the exam is missed. A different examination at a different time will then be arranged.

There is no assigned textbook. Most reading materials will be reviews of the area we are discussing, and will be placed on Carmen. PDFs of the Powerpoint lectures will also be provide as we begin each unit. Please pay attention to the reading assignments, which will be given both prior to, and during classroom sessions. Material assigned for reading may also be used to construct exam questions, especially when highlighted in class.

The lecture outlines will also be available on Carmen, however, be aware that some material will be delivered during lecture that will not be in these handouts! Routine attendance at class is highly advised.

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My office hours are set up by appointment, just drop me an email or catch me after class to set one up. Please feel free to talk to me about course matters that concern you. If you feel you need help, please don't hesitate to ask.

Finally, an important message faculty have been asked to share with the class.

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited. There is no tolerance for hateful speech or actions. All violations of this policy should be reported to the OSU Bias Assessment and Response Team (BART, <http://studentaffairs.osu.edu/bias/>).

(ASC Syllabus Template approved by the ASC CCI 5/9/08; revised ASCC 4/11/14; revised 11/13/15, Summer 2016, and Summer 2017)