1-2003

MICB 300.01: General Microbiology

William E. Holben
University of Montana - Missoula, Bill.Holben@mso.umt.edu

Microbiology 300 General Microbiology Spring 2003

TEXT: *Brock Biology of Microorganisms*, 10th ed., Madigan, Martinko, and Parker, Prentice Hall, 2002

Instructor: Prof. William Holben
Office hours: 11-noon, M-W-F or by appointment
Office: Health Science 503A
Phone: 243-6163
e-mail: bholben@selway.umt.edu

There will be three exams, two during the semester and one during the assigned time in finals week. Periodically during the semester (4-5 times) problem sets will be distributed and completed in-class in a small group format. You must be present and contribute to completing these in order to obtain credit for them. These will aid in preparation for Exams and in integrating and synthesizing ideas from different topic areas into a more coherent picture of general microbiology.

Grades will be based on: Exam #1 (20%); Exam #2 (20%); Final exam (20%); In-Class Problem Sets (20%), and Group Project (20%). Make-ups for In-Class Problem Sets and Exams are available only for excused and documented absences.

Recommendations for success in this class: 1) Read assigned chapters in advance of class. If you are familiar with the assigned material when you come to class, the in-class discussions will make much more sense and you will not feel as pressured about what notes to take; 2) Attend all classes for an overview and discussion of important aspects of each topic; 3) Show an appropriate level of interaction and input into in-class activities; 4) Put an appropriate level of effort into the Group Project and its presentation.

Date	Chapter	Topics covered
Jan 27		***Welcome and overview of class, discussion of group activities, select groups***
Jan 29	Chapter 1	Microorganisms and Microbiology
Jan 31	Chapter 2	Overview of Microbial Life
Feb 3	Chapter 3	Chemistry and Macromolecules *(review)*
Feb 5	Chapter 4	Microscopy, Cell Morphology, Cell Membranes, Cell Walls
Feb 7	Chapter 4	Microbial Locomotion, Surface Structures and Inclusions of Prokaryotes
Feb 10		***In-Class Problem Set I; Select Group Project Topics***
Feb 12	Chapter 5	Nutrition and Culture of Microorganisms
Feb 14	Chapter 5	Energetics and Enzymes, Oxidation/Reduction
Feb 17		***Holiday***
Feb 19	Chapter 5	Major Catabolic Pathways, Electron Transport, Catabolic Diversity
Feb 21		***Discuss Presentation Groups and presentations***
Feb 24	Chapter 6	Theory and Practice of Microbial Growth
Feb 26	Chapter 6	Environmental Effects on Microbial Growth
Feb 28	Chapter 6	Environmental Effects on Microbial Growth

Mar 3	Chapter 20	Physical and Chemical Microbial Control
Mar 5	Chapter 20	Antimicrobial Agents, Control of Viruses and Eukaryotes, Drugs
Mar 7		***Exam I***
Mar 10	Chapter 7	DNA Structure and Replication
Mar 12	Chapter 7	RNA Synthesis and Processing, Protein Synthesis
Mar 14	Chapter 8	Regulation of Enzyme Activity, Regulation of Transcription
Mar 19	Chapter 8	Regulation, Other Mechanisms, Contrast between Pro and Euk
Mar 21	Chapter 9	Virus and Virion, Growth and Quantification, Viral Replication
Mar 24	Chapter 9	Viral Diversity
Mar 26		***Spring Break***
Mar 28		***Spring Break***
Mar 31		***Spring Break***
Apr 2		***In-Class Problem Set II***
Apr 4	Chapter 10	Mutation and Recombination
Apr 7	Chapter 10	*In Vivo* Bacterial Genetics
Apr 9	Chapter 10	*In Vitro* Bacterial Genetics
Apr 11		***Exam II***
Apr 14	Chapter 11	Early Earth, Origin of Life, Microbial Diversification
Apr 16	Chapter 11	Evolutionary Relationships Among Microorganisms, Microbial Taxonomy and Its Relationship to Phylogeny
Apr 18	Chapter 18	Culture-Dependent Analysis of Microbial Communities, Measuring Microbial Activities in Nature
Apr 21	Chapter 18	Molecular Analysis of Microbial Communities
Apr 23		***In-Class Problem Set III***
Apr 25	Chapter 17	Overview of Metabolic Diversity in Microorganisms
Apr 28	Chapter 19	Carbon, Oxygen and Other Nutrient Cycles
Apr 30	Chapter 19	Microbial Ecosystems, Habitats (terrestrial, freshwater, marine)
May 2	Chapter 19	Microbial Bioremediation, Interactions with Plants
May 5	Chapter 21	Microbial Interactions with Humans and Animals, Beneficial and Harmful
May 7		***Group project presentations***
May 9		***Group project presentations***
May		***Group project presentations***
		Exam III