Tentative Syllabus for Microbiology: Bio 4030

Credit Hours/Contact Hours: 3/3

Instructor: Scott Leisner Wolfe Hall 3235
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Prereqs: Biology 3030, or Consent of Instructor

Textbook: *Principles of Microbiology*, *Eleventh Edition by:* Gerald Tortora, Berdell Funke and Christine Case, Pearson-Benjamin Cummings Publishers, 2013. ISBN-13: 978-0-321-73360-3.

Office Hrs.: TBA

Course Description: An introduction into the basic concepts of microbiology. Topics covered will include microbial cell structure and function microbial biochemistry and genetics, and disease.

Grading: Grading for this course will be based on homework and 4 examinations

The homeworks will be *take-home* assignments to be given without prior notice and will constitute 10 % of the final grade.

There will be *4 in-class* examinations each worth 15 % of the final grade and a final examination worth 45 % (450 points) of the final grade. Examinations are to be taken on the scheduled day at the scheduled time with no exceptions unless with a verifiable excuse. A total of 50 min and no more will be given to complete the in class exams, and the final will be for 2 hours. The in class exams will cover material following the previous exam to that exam and the final will be comprehensive. If you think that your examination has been graded unfairly, you have one week following its return to bring this to the instructor's attention, otherwise your grade will stand as is.

The Department of Biological Sciences and the University of Toledo have specific policies regarding academic dishonesty. The University Policies can be found in the University Catalog under General Policies.

Approximate Grading scale:

A :	100-90	C+:	75-73	D+:	59-57	F:	<50
A-:	89-86	C:	72-62	D:	56-52		
		C-:	61-60	D-:	51-50		
B+:	85-84						
B:	83-78						
B-:	77-76						

Microbiology: Bio 4030

Tentative List of topics:

		Book Chapter
Jan. 6	History of Microbiology	1
Jan. 8	Basic Techniques of Microbiology	3
Jan. 10	Basic Techniques of Microbiology, Cont.	3
Jan. 13	Basic Types of Microorganisms	10, 12
Jan. 15	Non-Bacterial Microorganisms	12
Jan. 17	Non-Bacterial Microorganisms Cont.	12
Jan. 20	**Holiday**	
Jan. 22	Non-Bacterial Microorganisms Cont.	12
Jan. 24	**Exam I**	
Jan. 27	Bacterial Cell Structure and Function	4
Jan. 29	Bacterial Cell Structure and Function, Cont.	4
Jan. 31	Bacterial Cell Structure and Function, Cont.	4
Feb. 3	Bacterial Cell Structure and Function, Cont.	4
Feb. 5	Bacterial Cell Structure and Function, Cont.	4
Feb. 7	Bacterial Diversity	11
Feb. 10	Bacterial Diversity, Cont.	11
Feb. 12	Bacterial Diversity, Cont.	11
Feb. 14	**Exam II**	
Feb. 17	Bacterial Metabolism	5
Feb. 19	Bacterial Metabolism, Cont.	5
Feb. 21	Bacterial Metabolism, Cont.	5
Feb. 24	Bacterial Metabolism, Cont.	5
Feb. 26	Microbial Genetics	8
Feb. 28	Microbial Genetics, Cont.	8
Mar. 3-7	**Spring Break**	
Mar. 10	Microbial Genetics, Cont.	8
Mar. 12	Microbial Genetics, Cont.	8
Mar. 14	Microbial Genetics, Cont.	8
Mar. 17	**Exam III**	
Mar. 19	Bacterial Replication and Growth	6, 7
Mar. 21	Bacterial Replication and Growth, Cont.	6, 7

Mar. 24	Bacterial Replication and Growth, Cont.	6, 7, 20
Mar. 26	Bacterial Replication and Growth, Cont.	20
Mar. 28	Virology: Structure, Function, Replication, Genetics	13
Mar. 31	Virology, Cont.	13
Apr. 2	Virology, Cont.	13
Apr. 4	Virology, Cont.	13
Apr. 7	**Exam IV**	
Apr. 9	Microbes and Disease	14-17
Apr. 11	Microbes and Disease, Cont.	14-17
Apr. 14	Microbes and Disease, Cont.	14-17
Apr. 16	Microbes and Disease, Cont.	21-26
Apr. 18	Microbes and Disease, Cont.	21-26
Apr. 21	Microbes and Disease, Cont.	21-26
Apr. 23	Microbes and Disease, Cont.	21-26
Apr. 25	Microbial Ecology	27
Apr. 30	**Final Exam (12:30-2:30)**	

Biology 4030-091 Supplement

Grading for Honor's students will be the same as for other undergraduate students with the following differences:

Grading for graduate students is distributed as follows:

Homeworks: Will constitute 10 % of the final grade.

Examinations:

Each of the 4 in-class examinations constitute 10% of the final grade.

The final examination is worth 45 % of the final grade.

Paper: Will constitute 15 % of the final grade.

In addition to the other materials, Honor's students are required to write a 6-10 page (not counting references) paper on a unique topic in microbiology that is not covered extensively in class. This paper is to be a literature survey on the topic. This paper also must discuss at least one primary paper on the topic in detail including critical analysis of the work. Finally this paper is to contain speculations by you as to which directions the authors should take next.

An outline of this paper is due by February 28th.

The final paper is due by 5:00 p.m. on April 25. The paper must be turned in to the instructor only!

The topic that you are required to write your paper on is the idea that bacteria are actually multicellular organisms. Good references on this topic to get you started are listed below:

J.H. Andrews. 1998. *Bacteria as modular organisms*. Annu. Rev. Microbiol. **52**: 105-126.

E. Ben-Jacob, I. Cohen, and D.L. Gutnick. 1998. *Cooperative organization of bacterial colonies: From genotype to morphotype*. Annu. Rev. Microbiol. **52**: 779-806.

J.A. Shapiro. 1998. *Thinking about bacterial populations as multicellular organisms.* Annu. Rev. Microbiol. **52**: 81-104.

J.A. Shapiro. 1995. *The significances of bacterial colony patterns.* BioEssays. **17**: 597-607.