Clarke College

Department of Biology
Introduction to Microbiology
Biol 132 (3 credit hours)
Dr. Kathryn Sutton, Assistant Professor of Biology
Spring, 2007
MWF 9-9:50; CBH Room 203

General Information

Office Location	CBH 222
Office Phone	588-6526 (or 6526, if on campus)
Email	kathryn.sutton@clarke.edu
Mail Station	MS 1791
Office Hours	MW 10-11 W 2-4 Th 11-12 F 10-12, 2-3 Or by appt. (please call or email me)

Required Text: Tortora, Funke, and Case. Microbiology, An Introduction, 9th ed. Benjamin Cummings, 2007.

Course Description:
Introduction to Microbiology explores many topics in the field of Microbiology, particularly those that relate to the medical field. Students will appreciate both the "good" and "bad" outcomes of our human encounters with microorganisms. Through case study assignments, students will become involved in the diagnosis of infectious disease.

Course Goal and Statement Connecting goals to the Clarke College Mission:

Students who complete this course will have a broad understanding of Microbiology and how this field relates to human health. Because this course is designed for Nursing majors, moral issues within the medical fields and compassion for the ill will also be a focus, in conjunction with the mission statement of the college.

Course Outcomes and Assessments:

Section I: Structure and Function of Infectious Agents

Course Outcomes-Students will successfully….	**Activity/Project/ Performance**	**Program Outcomes**
Describe the history of Microbiology and how microorganisms benefit us	Exam I (multiple choice and short answer sections)	Knowledge of structure and function of cells including genetics
Describe the structure of nucleic acids	Exam I (multiple choice and short answer sections)	
Compare and Contrast the processes of replication, transcription, and translation	Exam I(multiple choice and short answer sections)	
Classify mutations and determine the outcome	Exam I (multiple choice and short answer sections)	
Compare and Contrast prokaryotic and eukaryotic cell structure	Project I (a rubric defining the quality of the components will measure the assignment)	

Section II: Understanding viruses and other non-bacterial causes of infectious disease

Course Outcomes-Students will successfully….	**Activity/Project/ Performance**	**Program Outcomes**
Describe the structure of viruses	Exam II (multiple choice, matching, and essay sections)	Knowledge of structure and function of organisms
Classify the different types of viruses	Exam II (multiple choice, matching, and essay sections)	
Compare and Contrast the different modes of viral replication	Exam II (multiple choice, matching, and essay sections)	
Describe prions and how they cause diseases	Project II (a rubric defining the quality of the components will measure the assignment)	Students will demonstrate the ability to communicate scientific concepts and findings, both in writing and verbally

Section III: Human/Microbe Interactions

Course Outcomes-Students will successfully….	**Activity/Project/ Performance**	**Program Outcomes**
Examine the principles of disease and Nonspecific host defense mechanisms	Exam III (multiple choice, matching, and essay sections)	Demonstrate knowledge of structure and function of organisms
Acquired immunity	Exam III(multiple choice and essay sections)	
Demonstrate knowledge of host-pathogen interaction and the mechanisms of infectious disease	Final Exam (multiple choice, matching, and essay sections)	
Students will apply knowledge of host-pathogen interaction and microbe structure and function to diagnose infectious disease	Case studies I, II, and III (a rubric defining the quality of the components will measure each case study)	Students will demonstrate the ability to communicate scientific concepts and findings, both in writing and verbally

Attendance and participation policy including any required special events:
Regular attendance is recommended for this course, if you intend to succeed. For the purpose of both my interests and your own, role will be taken every day. If you must be absent for more than a day, you are required to notify me, Dr. Sutton. You are responsible for notes, handouts, and all assignments from missed classes. **I will not repeat classes for students who are not present. DO NOT schedule doctor's appointments, trips, etc. that conflict with class time. DO NOT take off early for or return late from scheduled college vacations.** Remember, the choice to miss class is your own. If a college sanctioned event (i.e. game, play, field trip for another course, etc.) conflicts with class time it is your choice to this skip class. If you are a conscientious student, this should not be a problem because **you** will be responsible and make up all work. Any assignments due the day you miss class must be given to me prior to the start of class (via email in **WORD or copied into the body of the email or delivered by a classmate). This rule stands no matter what reason you have for missing class. 10% will be deducted right off the top of the assignment for late work. 10% will also be deducted for each addition late day. After 4 days, do not bother to turn the assignment in to me.**

Examination Policy:
No make-up exams will be given except in the case of severe illness (doctor's note required) or a death in the immediate family (I must be notified by the Dean of Student Affairs). I will allow students to take an exam early if there is a college sanctioned event that conflicts with a scheduled exam date.

Statement on American with Disabilities Act
Any student who needs accommodations must contact Myra Benzer in the Learning Center. Be sure this happens very early in the semester. The Learning Center is located in the upper level of the Clarke College Library. You will not be able to take exams in the Learning Center unless there is a **documented** reason for doing so.

Statements on Academic Integrity
Clarke College Statement:
Although course activities encourage collaboration and shared learning, acknowledging others for their contribution is crucial. Do not copy words, ideas, papers or parts of papers from any source without giving credit through acceptable forms of documentation. Do not lend out your ideas, papers, or parts of papers to others. Passing off someone else's work as your own or allowing your work to be used this way is a serious break in the academic integrity of this class and the college. It may result in failure or expulsion. (See student handbook on academic integrity).

Dr. Sutton's Statement:
Cheating and Plagiarism **will not be tolerated in any form.** This includes tests, quizzes, homework assignments, and group projects and **will result in a zero for the test or assignment**. It is considered cheating if you fail to cite your references (internet sites included). **It is never acceptable (and you will fail the assignment if you do this) to copy ANYONE'S work word for word. You must always use your own words and then credit your source, using an acceptable and consistent style format. I will not accept work that does not have a bibliography.**

Grade Assignment

Your grade will be assigned based upon your examination scores and other assignments.

Exam or Assignment	Point Value
Individual project I	20
Individual project II	20
Exam I	100
Case Study #1	20
Exam II	100
Case Study #2	20
Exam III	60
Case Study #3	40
Final Exam	120

Your grade will be based on the percentage of the total number of points that you earn throughout the semester.

Points earned	Out of	Percentage	Letter Grade
465+	500	93+	A
450-464	500	90-92	A-
435-449	500	87-89	B+
415-434	500	83-86	B
400-414	500	80-82	B-
385-399	500	77-79	C+
365-684	500	73-76	C
350-364	500	70-72	C-
335-349	500	67-69	D+
315-334	500	63-66	D
300-314	500	60-62	D-
299 and less	500	59 and below	F

Tentative Lecture Schedule (instructor reserves the right to make changes, if necessary)

Week of	Day	Topic	Reading Assignment (before lecture)	Reading Assignment (after lecture)
1/15	M W F	No class-MLK Birthday Introduction to syllabus; how to use the text History of Microbiology		Syllabus 1-12 16-21
1/22	M W F	Beneficial Activities of Microorganisms and Introduction to infectious disease Major differences between prokaryotic and eukaryotic cells Structure of prokaryotic cells	77-80	81-95 96-98 (endospores)
Individual project#1		**Eukaryotic Organelles** **Assigned on Friday 1/26**	**Due Friday 2/2**	
1/29	M W F	Continue prokaryotic cell structure Define terms; DNA replication Transcription and Translation Amino acids and proteins	 214-217 43-47	 217-223 223-227
2/5	M W F	Mutations and their frequency Catch-up day for Chapter 8 **End of Material for Exam I** Overview of viruses	 386-389	231-236 389-393

Week of	Day	Topic	Reading Assignment (before lecture)	Reading Assignment (after lecture)
2/12	M	Viral multiplication: the lytic and lysogenic cycles		396-400
	Tu	**Exam during lab period-begins @9AM (2/13)**		
	W	Multiplication of animal viruses, Families of viruses		400-408; Table 13.4
	F	Retroviruses and cancer		409-412
		Prion Project Assigned on Friday 2/16	**Due Friday 2/23**	
2/19	M	Principles of disease; define terms; normal microbiota, and opportunistic microorganisms	420-423	424-428
	W	Exceptions to Koch's postulates; classification of disease; patterns of disease.		Continued
	F	Compromised host and nosocomial infections		Continued
		Case Study I Assigned on Friday 2/23	**Due on Monday 3/2**	
2/26	M	Portals of entry; capsules and enzymes	437-448	Table 15.1; 441-442
	W	How bacteria harm host cells; toxins		443-448; Table 15.3
	F	Nonspecific Defenses of the host; formed elements of the blood; phagocytosis; fever	Table 16.14	463-468; 471
		End of Material for Exam II		
3/5		No classes-Winter break		
3/12	M	Overview of acquired immunity; antigens and antibodies	482-484	484-488
	Tu	**Exam II during lab period (3/13)**		
		Mary Murphy Lecture (extra credit opportunity		491-492
	W	B cells and humoral immunity; function of antibodies		
	F	T cells and cell mediated immunity		

Week of	Day	Topic	Reading Assignment (before lecture)	Reading Assignment (after lecture)
3/19	M W F	Catch up day for immune system Vaccination schedule for U.S. Antimicrobial drugs and spectrum of activity; introduce 5 modes of action **No Classes- Faculty Development Day**	 459-461	495-503 461-467 467-470
3/26	M W F	Inhibitors of Cell Wall Synthesis Inhibitors of protein synthesis Antibiotics that injure plasma membrane; inhibit the synthesis of nucleic acids and essential metabolites; how microorganisms gain resistance to antibiotics		 570-573
4/2	M W F	Things people do to contribute to antibiotic resistance **End of material for Exam III** Diseases of the skin **Assigned Case Study II on diseases caused by bacteria** **No Class- Easter Break**	 590-592 **Due on Wednesday 11/16**	572-574 TBA
4/9	M **Tu** W F	**No Class-Easter Break** **Exam III in lab** Skin continued Diseases of the Nervous system	615-616 640-641	TBA TBA

Week of	Day	Topic	Reading Assignment (before lecture)	Reading Assignment (after lecture)
4/16	M W F	Nervous system continued Diseases of Cadiovascular system CV. continued	675-676	
4/23	M **Tu** W F	Diseases of Respiratory system **Case Study III Assigned in Lab** Respiratory system continued Diseases of the digestive System	675-676 **Due Tuesday 12/6**	TBA
4/30	M **Tu** W F	Diseases of the digestive system **Case Study III done in lab** Digestive system continued HIV	705-706	TBA
5/8	**TU**	**Final Exam 8-10 PM (administered in CBH 203)**		