

Cedar Crest College

Biology 127- Fundamentals of Microbiology

Fall Session 2009

Instructor Information:

- Instructor: Dr. Eileen Epsaro
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- Additionally, between 9:00 AM and 4:00 PM messages can be left with the department secretary at (610) 606-4611.

General Course Information:

- **Course Title:** Bio-127- Fundamentals of Microbiology 3 credits
- **Course Description:**
 - The general characteristics of bacteria, protozoa, yeasts, molds and viruses will be used to understand the role of microorganisms in human health and disease. The interactions between the host and microorganisms will be emphasized as well as physical and chemical methods of control.
- **Textbooks:**
 - Lecture: Tortora, G.; Funke, B.; Case C.; Microbiology: An Introduction, 10th Ed., Benjamin Cummings, 2010.
- **Format:**
 - Lecture: 3 hours per week
- **Attendance:**
 - **Attendance is mandatory.** In the event of a personal or family emergency, you must contact the office of the Dean of Student Affairs (Denise O'Neil : 610 606-4666, x4680) to obtain appropriate documentation for an excused absence. These offices will contact me. You should also contact me to discuss when you will make up the work that was missed.
 - You **MUST** come prepared for lectures (PowerPoint notes can be downloaded from the course e-college site). (It is **extremely important** to read through the all of the information on a daily/weekly basis.)

Lecture Syllabus

<u>Date</u>	<u>Lecture Topic</u>	<u>Text:</u> (Chapter/Pgs)
Aug	24 M Lecture 1: Introduction/History of Microbiology	1
	26 W Lecture 2: Properties of Biological Molecules/Enzymes; (QUIZ Lec 1)	p. 37-49; 115-19
	31 M Lecture 3: Prokaryotic Cell Structure/Function; Morphology	4 (p. 77-98)
Sept	2 W Lecture 4: Prokaryotic Microorganisms: Bacterial Growth and Nutrition; (QUIZ Lec 2-3)	6
	7 M NO Class (Labor Day)	
	9 W Lecture 5: Unusual Prokaryotic Cells; (QUIZ Lec 4)	p. 316,333,336-7
	9 W Lecture 6: Eukaryotic Cell Structure/Function	4 (p. 98-106)
	14 M Lecture 7: Eukaryotic Microorganisms: Algae and Protozoa	12 (p. 340-361)
	16 W Lecture 7 (con'd): Eukaryotic Microorganisms: Fungi; (QUIZ Lec 5-6)	12 (p. 330-339)
	21 M Lecture 8: Viruses: Structure and Replication	13
	23 W Lecture 8 (con'd): Viruses: Bacteriophages; Viruses and Cancer; HIV; (QUIZ Lec 7)	13, p. 539-548
	28 M Lecture 9: Control of Microorganisms: Physical Methods	7
	28 M Lecture 9 (con'd): Control of Microorganisms: Chemical Methods;	7
30 W <u>EXAM 1: Lectures 1-8</u>		
Oct	5 M Lecture 10: Control of Microorganisms: Antimicrobial Agents; (QUIZ Lec 9)	20
	7 W Lecture 11: Infection and Bacterial Invasiveness	14, 15
	12 M NO Class (Fall Break)	
	14 W Lecture 12: The Immune System: Non-Specific Host Resistance;	16
	19 M Lecture 13: The Immune System: Antigens and Antibodies	17
	21 W Lecture 14: The Immune System: Cellular Immunity; (QUIZ Lec 10-11)	17
	21 W Lecture 15: The Immune System: Role of Antibodies in Immunity	p. 494-495
	21 W Lecture 16: The Immune System: Antisera and Vaccines	p. 501-06
	26 M Lecture 17: Normal Flora; (QUIZ Lec 12-16)	p. 585-6; p. 675-6; p. 706; p. 744-5
	26 M Lecture 18: Pathogens that Enter the Body via the Respiratory Tract	24, 22
28 W <u>EXAM 2: Lectures 9-16</u>		
Nov	2 M Lecture 18 (con'd): Pathogens that Enter the Body via the Respiratory Tract	24, 22
	4 W Lecture 18 (con'd): Pathogens that Enter the Body via the Respiratory Tract; (QUIZ Lec 17)	24, 22
	9 M Lecture 19: Pathogens that Enter the Body via the Digestive Tract; (QUIZ Lec 18)	25, 22
	11 W Lecture 19 (con'd): Pathogens that Enter the Body via the Digestive Tract	25, 22
	16 M Lecture 19 (con'd): Pathogens that Enter the Body via the Digestive Tract	25, 22
	18 W Lecture 20: Pathogens that Enter the Body via the Genitourinary Tract; (QUIZ Lec 19)	26
	23 M Lecture 21: Pathogens that Enter the Body via the Skin	21, 22, 23
	25 W NO Class (Thanksgiving Break)	
	30 M Lecture 22: Zoonoses	23, p. 361-363
	Dec	2 W Review Session for Final Exam
7 M <u>EXAM 3: Lectures 17-20</u>		

Course Assessment

The lecture course will be worth a total of 550 points. The number of points the student earns divided by 550 will be the final grade.

	<u>Total Points</u>	<u>Student's Score</u>	<u>%</u>
Quiz 1 (lecture 1)	10	_____	_____
Quiz 2 (lecture 2, 3)	10	_____	_____
Quiz 3 (lecture 4)	10	_____	_____
Quiz 4 (lecture 5, 6)	10	_____	_____
Quiz 5 (lecture 7)	10	_____	_____
Quiz 6 (lecture 9)	10	_____	_____
Quiz 7 (lecture 10, 11)	10	_____	_____
Quiz 8 (lecture 12-16)	10	_____	_____
Quiz 9 (lecture 17)	10	_____	_____
Quiz 10 (lecture 18)	10	_____	_____
Quiz 11 (lecture 19)	10	_____	_____
Total Quiz Score (drop the lowest quiz)	100	_____	_____
Exam 1	100	_____	_____
Exam 2	100	_____	_____
Exam 3	100	_____	_____
Cumulative Final Exam	150	_____	_____
<u>Total Points for Lecture</u>	550	_____	_____

***(Student's Total Points/550) = Final Grade for the Course**

Course Regulations

1. Attendance is mandatory

- For each **lecture** missed, **2 points** will be deducted from the final lecture grade.
- A **doctor's excuse** or an **official excuse from the dean's office** will be permitted so as not to have any points deducted from lecture.
- If the student must miss a lecture, it is the responsibility of the student to make up all work that was missed.

2. Testing

- There will be no make-up for a lecture quiz that is missed. If a student must miss a lecture quiz, a 0 will be given and this will be the quiz that is dropped from the final grade.
- If a student **misses an exam** in lecture, **an excuse from the dean's office** is required, and the exam must be made up **within 24 hours** or a "0" will be given for the grade.
- **No** books, notebooks or papers will be permitted on desks during exams.
- **No** cell phones will be permitted in the classroom during exams.
- **Cheating** will result in a failure of the course.
- The **Honor Philosophy** should be followed in all work. See student code book.

3. Classroom Etiquette

- Students are expected to arrive promptly for each class session. Late arrivals or early departures will not be tolerated.
- Students are expected to be respectful in class. Unnecessary talking will not be permitted.
- Students are required to have a cooperative attitude and a willingness to learn.

***I will deduct up to 10% from the student's final grade if these requirements are not met.**

Course Objectives

At the completion of this course the student should be able to:

1. Describe the general characteristics of bacteria, protozoa, yeasts, molds and viruses.
2. Understand the roles that microorganisms have in the scheme of life, and that they are ubiquitous.
3. Explain the role that microorganisms have in maintaining human health and causing disease.
4. Understand the importance of food preservation and proper food handling in the prevention of food-borne diseases.
5. Describe the chemical and physical methods that are used to control microorganisms.
6. Describe the mechanism of action of some antibiotics/chemotherapeutic agents.
7. Explain the function of the immune system.
8. Describe the non-specific and specific immune response.
9. Explain the role of antisera and vaccines.
10. List some of the normal flora organisms.
11. Discuss the pathogens that enter the body by various portals.
12. Cultivate bacteria and understand their nutritional and physical requirements.
13. Perform various staining techniques.
14. Perform laboratory techniques aseptically.
15. Perform bacterial dilutions and plate counts.
16. Recognize bacterial types, protozoans, and fungi microscopically.
17. Prepare bacteriological media.
18. Isolate and identify a normal flora organism from the skin, GI tract, and the throat.

Course Outcomes

1. The student will learn the principles of Microbiology that are necessary for careers in nursing and nutrition.
2. Students will demonstrate critical thinking and reasoning skills when they isolate and identify unknown bacteria from the skin and gastrointestinal tracts.
3. Students will be able to function in a clinical setting that requires aseptic techniques. This will allow them to protect themselves and their patients from infectious agents.
4. Students should be able to prevent microbial food contamination in a food preparation setting.

Policies/Procedures

The following have been taken from the Student Custom Book

Honor Philosophy

The Cedar Crest College Honor Philosophy states that students should uphold community standards for academic and social behavior in order to preserve a learning environment dedicated to personal and academic excellence. Upholding community standards is a matter of personal integrity and honor. Individuals who accept the honor of membership in the Cedar Crest College community of scholars pledge to accept responsibility for their actions in all academic and social situations and for the effect their actions may have on other members of the College community.

Academic Integrity

Academic integrity and ethics remain steadfast, withstanding technological change. Cedar Crest College academic standards therefore apply to all academic work, including, but not limited to, handwritten or computer-generated documents, video or audio recordings, and telecommunications.

As a student at Cedar Crest College, each student shall:

- Only submit work which is his/her own
- Adhere to the rules of acknowledging outside sources, as defined by the instructor, never plagiarizing or misrepresenting intellectual property.
- Neither seek nor receive aid from another student, converse with one another when inappropriate, nor use material not authorized by the instructor.
- Follow the instructions of the professor in any academic situation or environment, including taking exams, laboratory procedures, the preparation of papers, properly and respectfully using College facilities and resources, including library and computing resources to ensure that these resources may be shared by all members of the College community.
- Abide by the Cedar Crest College Computer Use Policy.
- If a student perceives a violation of the Academic Standards, he/she will go to the instructor.
- If you are unable to resolve the problem with the instructor, you should go to the chair of the department. If you need further assistance after consultation with the instructor and the chair, you should see the Provost.

Classroom Protocol

Appropriate classroom behavior is defined and guided by complete protection for the rights of all students and faculty to a courteous, respectful classroom environment. That environment is free from distractions such as late arrivals, early departures, inappropriate conversations and any other behaviors that might disrupt instruction and/or compromise students' access to the Cedar Crest College education.

Students are expected to have prompt and regular classroom attendance in accordance with the policy stated on the syllabus.

Learning Disabilities/Statement of College Policy

Students with documented disabilities who may need academic accommodations should discuss these needs with their professors during the first 2 weeks of class. Students with disabilities who wish to request accommodations should contact the Advising Center.

I fully support the Cedar Crest College Honor Code and Classroom Protocol Code.

Plagiarism will result in an "F" for the assignment and will be reported to the Vice President for Academic Affairs and the Dean of Faculty.