

BIOL 220: Microbiology for Health Professionals

Dr. Elliott Blumenthal

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Office Hours: MTR 9-10 AM

Lecture Text: Nester, E.W. et al., 2004. Microbiology, Latest Edition

**Lab Text: Biology 220: Microbiology Lab Manual by Arlis LaMaster and
Dr. Shree Dhawale (Bookstore Consignment bound text)**

**Power Point Note Book: By Dr. Elliott Blumenthal ((Bookstore Consignment
bound text or available off the internet at the following address:**

**<http://users.ipfw.edu/Blumenth/BIOL220/CourseWebPage.html>) and
the WebCT class page**

**Computer clickers (available at the bookstore) are required for class
participation**

Class Lecture– MTR 10-12:20 SB 168

Lab Sections– MTR 8-9:50 SB 367

MTR 1-2:50 SB 367

Course Prerequisites and Objectives:

The Bulletin states that the minimum preparation for this course includes successful completion of both a semester of biology and a semester of chemistry. Ideally, you should choose a biology course like BIOL 100, which covers general concepts of biology rather than a specific area of biology like anatomy and physiology. Your chemistry course should include organic and biochemical concepts. This course (equivalent to CHM 104) should be taken previously to microbiology or at least as a co-requisite.

The course will emphasize concepts of general microbiology, and, will use examples of pathogens to illustrate how these concepts relate to Allied Health and Nursing practices. Topics will include, but not be limited to, areas such as microbiological classification, biochemistry of microorganisms, procaryotic and eucaryotic cell structure to understand how antibiotics can be selective, microbiological growth and nutrition, bacterial genetics to understand the concepts of antibiotic resistance, and host-parasite interactions to understand disease and defense against pathogens. To demonstrate mastery of this course, the student should be able to:

- 1) Illustrate the use of the scientific method in discussions of the cause and treatment of bacterial, viral and fungal diseases.
- 2) Discuss concepts and basic background information concerning the structure and function of generalized microorganisms.
- 3) Discuss the concept of the host-parasite interaction, and its relationship to the disease process.
- 4) Describe both the host's and microbe's defense mechanisms that are in competition during the disease process.

5) Discuss control measures that can be applied against the microbes both in the environment and in (on) the body.

6) Gain an understanding and appreciation of common laboratory techniques used to study microbes in the clinical setting.

Grading:

4 Lecture Exams (including Final)	400 points
Laboratory Notebook	20 points
Identification of bacterial unknowns	30 points
Mastery of techniques (streak & gram stain)	10 points
Five Laboratory Quizzes (best 4/5)	40 points
Comprehensive Lab Exam	50 points
Class participation and attendance	10 points
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Total Class points	560 points

Grading Scale

- A = 90% (504 points)
- B = 80% (448 points)
- C = 70% (392 points)
- D = 60% (336 points)
- F < 60% (<336 points)

Lecture and Lab Attendance:

Lecture– The summer course is highly intense and compact. It is **STRONGLY** recommended that you attend all class sessions. The exam material will come from both lecture and text, but explanations during class time are critical for a full understanding of the material. Make sure that you complete your reading assignment before the class lecture so that the terms and concepts have been seen/heard, It is much easier to learn in this manner. Missed exams will be impossible to make up. During the summer an exam will be given at the beginning of class and lecture will follow.

Lab– Lab attendance is compulsory. Any excused absences must be known prior to the day of the lab. Labs are not possible to make up. *More than two unexcused absences will result in the lowering of your CLASS grade by one letter.* Students are also expected to *read the daily lab exercise before class* so that an extensive review is not necessary and the required preparations can be completed within the time allotted.

**TENTATIVE Lecture Schedule
BIOL 220
Summer Session II, 2006**

<u>Date</u>	<u>Topic</u>	<u>Chapters in Nester</u>
June 25	Introduction & History	Chapter 1 & Chapter 2
June 26	Classification & Chemistry & Structure	Chapter 2 & Chapter 3
June 28	Chemistry & Procaryotic Structure	Chapter 3 & Chapter 10 & 11
July 2	Procaryotic and Eucaryotic Cell Structure	Chapter 10, 11, & 12
July 3	Exam # 1 & Microbial Growth	Chapter 4 & Chapter 5
July 5	Microbial Growth	Chapter 4 & Chapter 5
July 9	Microbial Metabolism	Chapter 5 & Chapter 6
July 10	Microbial Genetics & Biotechnology	Chapter 7 & Chapter 8
July 12	Microbial Genetics and Biotechnology	Chapter 8 & Chapter 9
July 16	Exam # 2 and Viruses	Chapter 13 & Chapter 14
July 17	Host Parasite Interactions	Chapter 14 & Chapter 19, 20
July 18	The Immune Response of Host	Chapter 15 & Chapter 16
July 23	The Immune Response of Host	Chapter 17 & Chapter 18
July 24	Exam # 3 and Antimicrobial Drugs	Chapter 21
July 26	Diseases of Skin and Respiratory System	Chapter 22 & Chapter 23
July 30	Diseases of the Digestive, Reproductive and Urinary systems	Chapter 24 & Chapter 25
July 31	Wound Infections and HIV	Chapter 27 & Chapter 29
Aug 2	Final Exam	