

MIDDLESEX COUNTY COLLEGE  
EDISON, NEW JERSEY

Course Title: **Essentials of Human Anatomy and Physiology** Catalog #: **Bio. 108**

Class Hours: 3 Laboratory Hours: 2 Credit Hours: 4

Department Chair: \_\_\_\_\_ Division Dean: \_\_\_\_\_ Date: 2008-2009

**Prerequisite:** Appropriate score on College's Placement Test or MAT 013 and one year high school laboratory science or BIO 010 or CHM 010.

**Required Textbooks for Course:**

<b><u>Author</u></b>	<b><u>Title</u></b>	<b><u>Publisher</u></b>	<b><u>Copyright</u></b>
<b>Martini, Frederic, Bartholomew, Edwin Welsh, Kathleen</b>	<b>The Human Body in Health and Disease ISBN# 0-13-856816-2</b>	<b>Prentice Hall</b>	<b>2000</b>

**Lab Manual**

<b>Cunningham, Keith Leslie Snider</b>	<b>Human Biology Laboratory Manual 4<sup>th</sup> edition ISBN# 0-7575-0524</b>	<b>Kendall/Hunt</b>	<b>2003</b>
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**Materials Required:**

Goggles or Safety Glasses

**Catalog Description:**

A one-semester survey of the cells, tissues, organs, and systems of the human body. Structural, functional, and biochemical features of the integumentary, skeletal, muscular, nervous, endocrine, special senses, digestive, respiratory, lymphatic, urinary and reproductive systems in health and disease are studied and examined. Recommended for non-science majors. This course fulfills the science requirement for Dietetic Technology students.

## **Course Goals:**

To provide an understanding of the basic structure and function of the integumentary, skeletal, muscular, nervous, sensory, endocrine, digestive, respiratory, lymphatic, urinary and reproductive systems of the human body in health and in disease. This is accomplished by lectures, demonstrations, class discussion, computer simulations, physiology and biochemistry laboratory experiments, out-of-class projects, and library/internet research.

## **Course Objectives:**

Upon completion of the course, the student will be able to:

1. Understand basic anatomical and physiological terminology.
2. Understand the principles of anatomy and physiology of the eleven systems of the human body. Special emphasis is given to the Digestive System.
3. Understand the interrelationships between the systems of the human body.
4. Understand the basic physiological principles of homeostasis and biological feedback mechanisms.
5. Understand the basic concepts of introductory chemistry, both inorganic and organic, with particular emphasis on the chemistry of nutrition.
6. Demonstrate the following laboratory skills:
  - a. proper use of scientific equipment
  - b. collection of data from physiological experiments and application of data to the scientific method.
  - c. Use of the A.D.A.M. computer program to study the body's systems.
  - d. Research the library and the Internet for references for reports and assignments.
7. Discuss current medical and ethical issues, think creatively, and use critical thinking to examine medical issues.
8. Be made aware of some of the scientists from various cultures and countries and their historical contributions to the science of anatomy, physiology, and medicine.

**Bio 108      Essentials of Human Anatomy & Physiology      Lecture Schedule**

Textbook: The Human Body in Health & Disease, by Martini, Bartholomew, and Welch, Prentice Hall, N.J., 2000

**Lecture Topic**

Chapter

- |   |      |
|---|------|
| 1. Introduction to Human Body; Homeostasis          | 1    |
| 2. Structure & Function of Cells; Cancer, and Drugs | 2    |
| 3. Tissues and Body Membranes; Organs & Systems     | 4, 5 |
| 4. Mechanisms of Disease                            | 6    |

**Lecture Exam 1**

- |  |        |
|--|--------|
| 5. Integumentary & Skeletal Systems    | 7, 8   |
| 6. Muscular & Nervous Systems          | 9, 10  |
| 7. Nervous System: Brain & Spinal Cord | 11     |
| 8. Endocrine System & Blood            | 13, 14 |

**Lecture Exam 2**

- |  |        |
|--|--------|
| 9. The Heart & Circulation, Lymphatic System<br>& Immunity | 15, 16 |
| 10. Respiratory & Digestive Systems                        | 17, 18 |
| 11. Nutrition & Metabolism                                 | 19     |
| 12. Urinary & Reproductive Systems                         | 20, 21 |

**Lecture Exam 3**

**\*NOTES**

1. Students must prepare for each lecture by reading the assigned chapters BEFORE each lecture.
2. Absence from more than 3 lectures may result in withdrawal from the class with a WP or WF.
3. If you miss a class, it is your responsibility to call a class member for the assignment and to be fully prepared for the next class, INCLUDING EXAMS.

## Bio 108 Lab Schedule

<u>Lab*</u>	<u>References or Lab Manual Exercise</u>
1. <u>Introduction; Lab Safety</u> , Film, “Landscapes and Interiors.”	Handout
2. <u>The Metric System</u> : Thinking Metrically	Ex. 1
3. <u>Body Organization</u> : Cells, Tissues, Organs, Systems: Anatomical Terminology, Planes, Cavities	Handout + Ex. 2
4. <u>Digestive System</u> Film “Breakdown;” Bowel Sounds: Digestive Organs & Their Functions	Handout
5. <u>Diet Analysis</u> Nutrition & BMR	Ex. 10
6. <u>Reading Food Labels</u>	Handout
7. <u>Blood</u> : Contents of Blood; Typing & Rh	Ex. 12
8. <u>Cardiovascular Biology</u> : Heart Sounds, Pulse, BP, EKG	Ex. 11
9. <u>Urinalysis &amp; Urinary System</u>	Ex. 13
10. <u>The Human Nervous System &amp; Perception</u>	Ex. 14
11. <u>Digestion</u> : Pancreatic Amylase and Starch Hydrolysis	Ex. 9
12. <u>Bacteria</u> : Film, “Bacteria;” Setup Experiments	Handouts
13. <u>Bacteria</u> : Collect Data & Analyze Results; Film “The Dangers on our Plate”	Handout
14. <u>pH, Acids, Bases</u> (or Nutrient Testing)	Ex. 5 + Handout
15. <u>Homeostasis</u> (or Biochemistry)	Handout

## Bio 108 Grading Criteria & Course Requirements

	<u>Percent of Grade</u>
Lecture Exams	50
Lab Quizzes	25
Lab Reports	<u>25</u>
TOTAL	100

### Course Requirements:

1. You are required to attend every lecture and every lab for full course credit.
2. Lab Quizzes **MAY NOT BE MADE UP** for **ANY** reason.
3. Lab reports **MUST** be turned on due date. They must be typed and stapled. Late lab reports will result in a loss of 5 points per day late.
4. You are expected to read the chapters assigned **BEFORE** the lecture and lab in order to be prepared for class.
5. Lecture Exams **MUST** be taken on the assigned dates. Students who are seriously ill or who have a verifiable emergency **MUST** call on date of exam to report the absence. Makeup exams are only given at instructor's discretion.