

**DEPARTMENT OF BIOLOGY
MEDGAR EVERS COLLEGE
CITY UNIVERSITY OF NEW YORK**

BIO 151 * ANATOMY AND PHYSIOLOGY OF HUMAN SYSTEMS I**

Textbook: Anatomy and Physiology, 7th edition (2006) by Rod R. Seeley, Trent D. Stephens and Philip Tate
Publishers: McGraw Hill ISBN 0-07-250747-0

Recommended Supplement: Lecture Companion to accompany Martini Anatomy and Physiology (2001) by Margaret Carroll and Ebere Nduka. Publishers: Person Custom Publishing
ISBN 0-536-66615-6

Lab Book: Laboratory Manual Anatomy & Physiology Seventh edition (2006) by Eric Wise
ISBN 0-07-255330-8
Publishers: McGraw-Hill

COURSE DESCRIPTION:

BIO 151 is the second of a three part Human Anatomy & Physiology course (BIO 150/151/152). Students must first pass the lecture and lab section of BIO 150 before registering for BIO 151. This three sequence Anatomy & Physiology course is geared for Nursing students and other students wishing to complete their Anatomy & Physiology requirement in three semesters. This course identifies the 11 organ systems in the body and then goes on to present in detail the anatomy and physiology of the integumentary, skeletal, muscular, nervous and endocrine systems as well as their functional interactions with each other and the other systems.

COURSE REQUIREMENTS:

Prerequisite: BIO 150

Students who register for BIO 151 must also register for BIOL 151 which is the laboratory part of the course. The course carries 4 credits and meets six hours a week (3 hours lecture and 3 hours lab).

GRADING: The student's final grade for BIO 151 will be determined as follows:

LECTURE GRADE:60% of course grade

Instructor's classroom exams* 25%

Uniform departmental midterm 15%

Uniform departmental final 20%

* Besides the two departmental exams, there will be AT LEAST two lecture exams given by the instructor.

LAB GRADE: 40% of course grade

Instructor's contribution towards lab grade* 20%

Departmental written lab midterm 10%

Departmental written lab final 10%

* Besides the two departmental lab exams, there will be AT LEAST two practical lab exams given by the lab instructor.

THERE WILL BE NO MAKE-UP EXAMS FOR ANY OF THE DEPARTMENTAL EXAMS. At the end of the semester, the marks for the lecture, lab and all departmental exams will be added up to determine the student's final grade for the course. A letter grade will be assigned to BIO 151 and a "P" or "F" will be assigned to BIOL 151. Students earning an "F" grade for BIO 151 will automatically be assigned an "F" grade for BIOL 151.

Lecture #	Topics	Chapters
1.	Review of the body's levels of organization and the components & functions of the 11 organ systems. The Integumentary System. Also mention the three germ layers, ectoderm, mesoderm and endoderm.. The entire chapter on integumentary system should be covered in detail except details of hair and nails. skin and vitamin D, glands of the skin, and blood supply to the skin should be emphasized. Burns with special reference to the three degrees of burn: 1 st , 2 nd , and 3 rd degree burns and the differences between them ex. 1 st degree= Meisner's corpuscles lost; 2 nd degree =Pacinian corpuscles lost; 3 rd degree = no more pains as pain receptors are lost etc.	1, 5
2.	Anatomy of the Skeletal System: The Axial skeleton. Details of the entire chapter should be emphasized. Identification of individual bones should be dealt with in the lab.	7
3.	Anatomy of the Skeletal System continued: The Appendicular skeleton. Details of the entire chapter should be emphasized. Identification of individual bones should be dealt with in the lab.	7
4.	Articulations and Movements Details of the entire chapter should be emphasized Identification of different types of joints should be dealt with in the lab.	8
5.	Muscular System: Histology and Physiology Emphasis should be made on the organization of the muscle tissue. Sarcomere structure; sliding filament theory; Physiology of Skeletal Muscle Fibers, Membrane Potentials; Action Potentials; Neuromuscular junction; Excitation-Contraction Coupling types of tension Energy use and muscular activity.	9
6	The Muscular System: Axial and Appendicular Musculature. Most of this chapter should be discussed in the lab. Emphasis in the lecture should be limited to the discussion of the basis for naming skeletal muscles as well as the origin and insertion of the following muscles: biceps; triceps; sternocleidomastoid; rectus abdominis; internal oblique; external oblique; quadriceps femoris; gluteus, maximus etc. Discuss in general exterior and interior muscles; give examples: anterior/superficial muscles; muscle groups in the arm and leg. MIDTERM EXAMINATION.	10

7.	Functional Organization of Nervous Tissue: Neurons and Neuroglia: neurophysiology. Propagation of Action Potentials; the Synapse; Spatial and Temporal Summation; Neuronal Pathways and Circuits.	11
8.	The Spinal Cord and Spinal Nerves Functions of the Spinal Chord. Neuronal Pools. Reflexes: This may be emphasized in the lab.	12
9.	The Brain and Cranial nerves Functions of the different Parts of the 13 Brain. Blood Supply to the Brain. Embryological development of the Central Nervous System.Brain.	
10	Integration of Nervous System Functions: Somatic Sensory and Motor Pathways; Types of receptors. Identify only Major Somatic Pathways Monitoring Brain Activity: The Electroencephalogram.	14
11	The Special Senses; Olfaction; Taste; Visual System Auditory Function.	15
12 .	The Autonomic Nervous System Divisions of the ANS. Functions of the Different Divisions of the ANS	16.
13.	The Endocrine System General Definition and Functions of Hormones. Principal Endocrine Glands and their hormones. Remind them the role of Hypothalamus. Pancreas as an example of gland that has both exocrine and endocrine functions. Sex glands: Testis and Ovary and their hormones.	17.
14.	FINAL Exam	

LABORATORY SESSION 1

The Integument.....EXERCISE 5

LABORATORY SESSION 2

The Skeletal Plan EXERCISE
Appendicular Skeleton EXERCISE 7

LABORATORY SESSION 3

Vertebrae, Ribs, Sternum and Hyoid.....EXERCISE 8

LABORATORY SESSION 4

Axial SkeletonEXERCISE 9

LABORATORY SESSION 5

Articulations.....EXERCISE 10
Body Movements.....

LABORATORY SESSION 6

Muscle Structure EXERCISE 11
Cat Dissection..... EXERCISE 12
Head and Neck Muscles.....EXERCISE 14

LABORATORY SESSION 7

Thorax and Shoulder Muscles.....EXERCISE 12
Upper Extremity Muscles EXERCISE 12
Muscles of the Torso..... EXERCISE 15
Lower Extremity Muscles..... EXERCISE 13

LABORATORY SESSION 8

MIDTERM EXAM - PRACTICAL & WRITTEN

BIOL 151 LAB TOPICS - continued

LABORATORY SESSION 9

Nerve Tissue.....	EXERCISE 16
Spinal Cord / Somatic Nerves.....	EXERCISE 18

LABORATORY SESSION 10

Brain: External Anatomy & Cranial Nerves.....	EXERCISE 17
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LABORATORY SESSION 11

Brain: Internal Anatomy.....	EXERCISE 17
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LABORATORY SESSION 12

Sensory Function; Stimuli and Reflexes.....	EXERCISE 19-23
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LABORATORY SESSION 13

Endocrine System.....	EXERCISE 24
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LABORATORY SESSION 14

FINAL EXAM - PRACTICAL & WRITTEN