DEPARTMENT OF BIOLOGY
MEDGAR EVERS COLLEGE of the CITY UNIVERSITY OF NEW YORK

SYLLABUS
BIO 150 *** INTRODUCTION TO ANATOMY AND PHYSIOLOGY

TEXTBOOK:	Anatomy and Physiology, 7th edition (2006) by Seeley, Stephens & Tate, McGraw-Hill Publishers. ISBN 0-07-25-0747-0
RECOMMENDED SUPPLEMENT:	Anatomy & Physiology Lecture Companion (2001) by Margaret Carroll and Ebere Nduka, Pearson Custom Publishing. ISBN 0-536-66615-6 obtained via http://www.barnesandnoble.com
LAB TEXTBOOK:	Laboratory Manual t/a Seeley/Stephens/Tate Anatomy and Physiology, 7th edition (2006), McGraw-Hill Publishers. ISBN 0072553308

COURSE DESCRIPTION:

BIO 150 is the first of a three semester Anatomy & Physiology course (BIO 150/151/152). It is geared towards pre-Nursing students and other students wishing to complete their Anatomy & Physiology requirement over three semesters. This course serves as an introduction to Human Anatomy & Physiology on the cellular and tissue level. Topics include an introduction to the Sciences of Anatomy and Physiology and its Levels of Organization; Anatomical Terminology; Homeostasis; Inorganic and Organic chemistry of the cell; Cellular Metabolism & Energetics; Cellular Anatomy & Diversity; the Cell Life Cycle; Meiosis & the Fundamentals of Human Genetics; Human Histology and the Anatomy and Physiology of Osseous Tissue. Students who register for BIO 150 must also register for BIOL 150 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).

Prerequisite: completion of all basic skills in Math and English *Corequisite*: MTH 136

GRADING:

Final Grades for BIO/BIOL 150 are awarded to the student by the <u>Department of Biology</u>
PLEASE NOTE THAT 55% OF YOUR GRADE WILL BE BASED UPON UNIFORM EXAMS GIVEN BY THE DEPARTMENT. STUDENTS ARE RESPONSIBLE FOR DOING ALL THE SYLLABUS READINGS.

The student's final grade for BIO 150 will be determined as follows:

LECTURE GRADE: ……60% of course grade

Instructor's classroom exams*	25%	
Uniform departmental midterm	15%	
Uniform departmental final	20%	(date to be announced)

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

THERE WILL BE NO MAKE-UPS 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. The Biology Department will assign a letter grade to BIO 150 and a "P" or "F" will be assigned to BIOL 150. Students earning an "F" grade for BIO 150 will automatically be assigned the grade of "F" for BIOL 150.

BIO 150 SYLLABUS - LECTURE TOPICS

Week	Topics	Ch
1.	The Human Organism: clinical terminology, levels of organization, homeostasis & system integration.	**Ch 1**
2	Chemical Basis of Life: Atomic structure, atomic number/ atomic mass numbers, isotopes, compounds & chemical bonds, types of chemical reactions, basic energy concepts, enzymes as organic catalysts.	**Ch 2**
3	Chemical Basis of Life continued: Inorganic compounds; Acids, Bases & Salts; Buffers and pH control	**Ch 2**
4	Chemical Basis of Life continued: Organic compounds; carbohydrates, lipids, essential fatty acids, polypeptides, protein structure, ATP and other nucleotides.	**Ch 2**
5	Chemical Basis of Life continued: Nucleic Acids: DNA/RNA structure Structure and Function of the Cell: the plasma membrane – membrane lipids, proteins and carbohydrates and their functions.	**Ch 2** **Ch 3**
6	Structure and Function of the Cell continued: cytoplasm, cytosol, cytoskeleton, membranous and non-membranous organelles, the nucleus, DNA synthesis, gene activation, transcription and RNA synthesis, translation and protein synthesis.	**Ch 3**
7	Structure and Function of the Cell continued: Active and passive movement across membranes, diffusion, osmosis, carrier-mediated transport, vesicular transport, transmembrane potential, cell diversity and differentiation, benign and malignant tumors.	**Ch 3**
8	**DEPARTMENTAL MIDTERM * chapters 1,2,3 - Date to be announced**	
9	Mitosis, Meiosis and Genetics: Cellular reproduction in somatic cells, stages of the cell cycle, stages of mitosis, cytokinesis Cellular reproduction in non-somatic (sex) cells, spermatogenesis & oogenesis, stages of meiosis, non-disjunction Inheritance & basic genetic properties, alleles, phenotype & genotype	**Ch 3** **Ch 28 (part)** **Ch 29 (part)**
10	Histology - The Study of Tissues: overview of Epithelial, Connective, Muscle and Nervous tissue, Primary germ layers Epithelial Tissue: function and classification, glandular tissue	**Ch 4**
11	Histology - The Study of Tissues continued: Connective tissue: Classification and functions of connective tissue, connective tissue proper, fluid and support connective tissue.	**Ch 4**
12	Histology - The Study of Tissues continued: Tissue membranes: mucus, serous, cutaneous & synovial membranes, fascia, tissue injury & repair Skeletal System - Bones and Bone Tissue: Cartilage and Bone, the two types of support connective tissue	**Ch 4** **Ch 6**
13	Skeletal System - Bones and Bone Tissue continued: bone types/ classification and bone histology	**Ch 6**
14	Skeletal System - Bones and Bone Tissue continued: bone development, bone growth, remodeling and repair, bone markings.	**Ch 6**
15	**DEPARTMENTAL FINAL* cumulative exam – date to be announced**	

*** To BEST prepare for success in the departmental exams, it is highly recommended that the students read ALL the chapter material in the Seeley textbook and the Lecture Companion that is recommended for the course.**

BIOL 150 SYLLABUS - LAB TOPICS
Lab (BIOL 150) syllabus

LAB TEXTBOOK:

Laboratory Manual t/a Seeley/Stephens/Tate Anatomy and Physiology, 7th edition (2006), McGraw-Hill Publishers. ISBN 0072553308

Weekly Lab Exercises

Week	TOPIC	Lab Book Exercise	SUPPLEMENT
1	Laboratory Safety Anatomical Terminology - Body Cavities, Body Planes, Membranes	**Inside cover Ex #1**	**LAB #1 Supplement**
2	Gross Structures – Organ Systems & Structures Rat dissection **(goggles & dissecting kit required; gloves optional)**	**Ex #1**	**no**
3	The Use and Care of the Microscope	**Ex #2**	**no**
4	The Chemistry of Biological Macromolecules **(goggles required; gloves optional)**		**LAB #4 Supplement**
5	Hydrogen ion concentration & Buffering Systems **(goggles required; gloves optional)**		**LAB #5 Supplement**
6	Cytology: Basic Cell Structure	**Ex #3**	
7	Osmosis and Cell Membrane Integrity **(gloves optional)**	**Ex #3**	**Lab #7 Supplement**
8	**MIDTERM EXAM** **DEPARTMENTAL (WRITTEN) & PRACTICAL (given by instructor)**		
9	Mitosis Meiosis: (spermatogenesis & Oogenesis) Inheritance	**Ex #3**	**Lab #9 Supplement**
10	Histology: Epithelial tissue Wet Mount of Cheek epithelial cells **(goggles required; gloves optional)**	**Ex #4**	**no**
11	Histology: Connective Tissue	**Ex #4**	**no**
12	Special Connective Tissue: Bone	**Ex #4 & 6**	**no**
13	The Skeletal Plan (bone structure and bone fractures) and Review for Final	**Ex #6**	**no**
14	*** FINAL EXAM** **DEPARTMENTAL (cumulative written final) & PRACTICAL (given by instructor)**		

*** To BEST prepare for success in the departmental lab exams, it is highly recommended that students read all the exercise material in the LAB BOOK (not the textbook) as well as the handouts provided, and complete the corresponding review assignments at the end of each lab textbook exercise.**