

**NATURAL SCIENCES DEPARTMENT
HOSTOS COMMUNITY COLLEGE
of THE CITY UNIVERSITY OF NEW YORK**

BIO 230 (formerly BIO 3906), **ANATOMY AND PHYSIOLOGY I**

Section: 4 credits. 3-hr. lecture/3-hr. lab

(syllabus: Fall 2011, v04)

Professor:

Meets:	
Email:	
Office:	
Phone:	
Contact Policy:	

COURSE DESCRIPTION:

The student will demonstrate knowledge of basic chemistry, body fluids, and the structure and function of the cell. The student will also list and describe the four kinds of animal tissue; list major bones and their function; and describe structure and function of the muscular and circulatory systems. This course is offered in English only.

COURSE OBJECTIVES:

By the end of the course, students will:

1. Interpret scientific observations and delineate conclusions
2. Comprehend and learn from texts and lectures, take notes, analyze and synthesize the material, and respond with informed questions/reports
3. Locate, evaluate, and use information in a variety of formats and organize, analyze, evaluate, treat critically and present that information in a cohesive and logical fashion
4. Acquire important knowledge and information for life-long learning
5. Learn experimental techniques and laboratory skills such as microscopy and dissection
6. Enhance their writing ability and critical thinking skills by preparing lab reports

Co-requisites: *ENG 091, ESL 091 or ESL 035; MAT 020*

TEXTBOOK: VISUAL ANATOMY & PHYSIOLOGY by Fredric H. Martini, William C. Ober, et al., Pearson Education Inc., Pub., 2011. ISBN 978- 0- 321- 78667- X. www.pearsonhighered.com.

LABORATORY MANUAL: EXPLORING ANATOMY & PHYSIOLOGY IN THE LABORATORY by Erin C. Amerman, Morton Publishing Company, 2011. ISBN-13: 9780895827975. <http://www.morton-pub.com>.

Graded assignments: The Final grade will be determined by the grades on lecture and lab combined as follows:

Lecture	75%:
Laboratory	25%:
Total Grade for Course	100%

*****You must take both the lecture and laboratory final exams in order to pass the course . Failure to take one or both of the final exams will result in an INC or an F. If you get an INC you must take a “makeup” exam before the deadline of the INC will be changed to an F. ******

++ You must label the diagrams and answer the questions in you laboratory manual for each laboratory exercise that we do in class.

The grade of Incomplete (I) is given in regular courses upon request of the student for personal emergencies that are verifiable. The faculty member has the responsibility to provide Inc grade only to those students **who are passing the course**. The student has the responsibility to take the initiative in completing the work, and is expected to make up the incomplete during the first semester in residence after receiving the grade of Incomplete. If the student does not make up the incomplete during the following semester after receiving it, **an F grade may be given by the faculty member without further consultation with the student.**

If after the end of the first semester the Inc remains on the record it will be designated as an F and will be computed in the student's GPA.

Grade	GPA Value	
A	93-100%	4
A ⁻	90-92%	3.7
B ⁺	87-89%	3.3
B	83-86%	3
B ⁻	80-82%	2.7
C ⁺	77-79%	2.3
C	70-76%	2
D	60-69%	1
F	below 60%	0

There is no R grade in this course.

Lecture and Lab Participation:

Your participation in class is an important part of the final grade. This grade is based primarily on your participation in class discussions, in team projects and your attendance. For each class you miss, you will lose participation points. If you miss 25% or more of the term, you will fail.

Students with disabilities:

If any student has a disability that requires course accommodations, please contact me by phone or email as soon as possible to discuss your situation. I will be pleased to meet with you to discuss the matter as well. If you have not already done so, you should register with the college's office of **Services for Students with Disabilities**, located in the Savoy building in Room D101P; telephone: **718-518-4454**. The office will assess your eligibility for services and / or accommodations and will work with you to plan and implement appropriate accommodations to assist you to complete requirements for this and other courses.

Academic Integrity:

Hostos Community College believes that developing student's abilities to think through issues and problems by themselves is central to the educational process. Since the Hostos College degree signifies that the student knows the material s/he has studied, and the practice of academic dishonesty results in grades or scores that do not reflect how much or how well the student has learned, understood, or mastered the material, the College will investigate any form of academic dishonesty brought to its attention. If the charge of academic dishonesty is proved, the College will impose sanctions. The three most common forms of academic dishonesty are cheating, plagiarism, and bribery.

In the collegiate setting, cheating is defined as the purposeful misrepresentation of another's work as one's own. Faculty and students alike are responsible for upholding the integrity of this institution by not participating either directly or indirectly in act of cheating and by discouraging others from doing so. Plagiarism is a form of cheating which occurs when persons, even if unintentionally, fail to acknowledge appropriately the sources for the ideas, language, concepts, inventions, etc. referred to in their own work. Thus, any attempt to claim another's intellectual or artistic work as one's own constitutes an act of plagiarism. In the collegiate setting, bribery involves the offering, promising, or giving of items of value, such as money or gifts, to a person in a position of authority, such as a teacher, administrator, or staff member, so as to influence his/her judgment or conduct in favor of the student. The offering of sexual favors in exchange for a grade, test score, or other academic favor, shall be considered attempted bribery. The matter of sexual favors, either requested or offered, in exchange for a grade, test score or other academic favor, shall also be handled as per the Sexual Harassment procedures of the College.

If you are suspected of plagiarism or cheating or if you attempt to bribe or influence your professor, you will be immediately reported to the college's Academic Integrity Officer. You will be unable to drop the class. The penalties range from an F with a score of 0 for an assignment to Failure for the entire term to expulsion from The City University of New York.

Attendance:

Students are expected to attend all class meeting in the courses for which they are registered. Classes begin at the times indicated in the official schedule of classes. Arrival in class after the scheduled starting time constitutes lateness.

The maximum number of absences is limited to 15% of the number of scheduled class hours per semester and a student absent more than the indicated 15% is deemed excessively absent. Attendance is monitored from the first official day of classes. In the case of excessive absences or lateness, the instructor has the right to lower the grade, assign a failing grade, or assign additional written work or readings.

Absences due to late registration, change of program, or extenuating circumstances will be considered on an individual basis by the instructor. Each department and program may specify in writing a different attendance policy. Instructors are required to keep an official record of student attendance and inform each class of the College's or department attendance policy.

No student under any circumstances will be given a passing grade in this Biology course without taking and passing the laboratory. Four (4) unexcused absences from the lab are equivalent to an F.

LECTURE SYLLABUS

TEXTBOOK: VISUAL ANATOMY & PHYSIOLOGY by Fredric H. Martini, William C. Ober, et al., Pearson Education Inc., Pub., 2011. ISBN 978- 0- 321- 78667- X. www.pearsonhighered.com.

Course schedule: Readings must be completed for each class. Not all assigned texts will be discussed in class or covered in the class lectures.

<u>SUBJECT AREAS</u>	<u>CHAPTER / PAGES</u>
1. Introduction to Human Anatomy & Physiology	1/ 2-- 33
2. Chemical Level of Organization	2/ 34 – 75
3. Cellular Level of Organization	3/ 76 – 122
4. Tissue Level of Organization	4/ 123 – 157
5. Integumentary System	5/ 159 - 181
6. Osseous Tissue and Bone Structure	6/ 182 - 209
7. The Skeletal System	7/ 210 - 255
8. Articulations	8/ 256 – 279
9. Skeletal Muscle Tissue	9/ 280 – 311
10. The Muscular System	10/ 312 – 361
11. Blood and Blood Vessels	17/ 574 – 623
12. The Heart and Cardiovascular Function	18/ 624 – 675
13. The Lymphatic System and Immunity	19/ 676 -- 719

<u>TOPIC</u>	<u>LECTURE SUBJECT MATTER</u>	<u>PAGE</u>
1.	INTRODUCTION TO HUMAN ANATOMY AND PHYSIOLOGY	1
	Anatomy and Physiology	
	Levels of Organization	11
	Homeostasis	19
	Anatomical Terms	23
	Chapter Review	31
2.	CHEMICAL LEVEL OF ORGANIZATION	34
	Atoms and Molecules	35
	Chemical Reactions	45
	The Importance of Water in the Body	53
	Organic Compounds	59
	Chapter Review	73
3.	CELLULAR LEVEL OF ORGANIZATION	76
	An Introduction to Cells	77
	Structure and Function of the Nucleus	91
	How Things Enter and Leave the Cell	101
	The Cell Cycle	111
	Chapter Review	119
4.	TISSUE LEVEL OF ORGANIZATION	122
	Epithelial Tissue	123
	Connective Tissue	137
	Muscle Tissue and Neural Tissue	149
	Chapter Review	155
5.	INTEGUMENTARY SYSTEM	158
	Functional Anatomy of the Skin	159
	Accessory Organs of the Skin	167
	Chapter Review	179
6.	OSSEOUS TISSUE AND BONE GROWTH	182
	An Introduction to the Bones of the Skeletal System	183
	The Physiology of Bones	201
	Chapter Review	207
7.	THE SKELETON	
	The Axial Skeleton	211
	The Appendicular Skeleton	237
	Chapter Review	253

8.	ARTICULATIONS	256
	Joint Design and Movement	257
	Articulations of the Axial and Appendicular Skeletons	267
	Chapter Review	277
9.	SKELETAL MUSCLE TISSUE	280
	Functional Anatomy of Skeletal Muscle Tissue	281
	Functional Properties of Skeletal Muscle Tissue	293
	Chapter Review	309
10.	THE MUSCULAR SYSTEM	312
	Functional Organization of the Muscular System	313
	The Axial Muscles	321
	The Appendicular Muscles	335
	Chapter Review	359
11.	BLOOD AND BLOOD VESSELS	574
	Blood	575
	The Functional Anatomy of Blood Vessels	595
	Chapter Review	621
12.	THE HEART AND CARDIOVASCULAR	624
	Structure of the Heart	625
	The Cardiac Cycle	641
	The Coordination Output and Peripheral Blood Flow	657
	Chapter Review	673
13.	THE LYMPHATIC SYSTEM AND IMMUNITY	676
	Anatomy of the Lymphatic System	677
	Nonspecific Defenses	691
	Specific Defenses	701
	Chapter Review	717

LABORATORY SYLLABUS

LABORATORY MANUAL: EXPLORING ANATOMY & PHYSIOLOGY IN THE LABORATORY
by Erin C. Amerman, Morton Pub. Co., 2011..

<i>Week</i>	<i>Laboratory Topic</i>	<i>Unit</i>	<i>Lab Manual Pages</i>	<i>Date</i>
1	Lab Orientation (Introduction to Anatomical Terms)* Chemistry 1: Atomic Structure	1 2, <i>handout</i>	1-26; 28-32 38-39	
2	Chemistry 2: Electrolytes & pH	2 <i>handout</i>	33-35 45-48	
3	Introduction to the Microscope	3 <i>handout</i>	49-56	
4	Cytology: Organelles & Cell Structure Mitosis & the Cell Cycle	4 <i>handout</i>	57-66 72-75	
5	Diffusion, Osmosis, & Tonicity	4 <i>handout</i>	67-72 77-80	
6	Histology 1: Epithelial & Connective Tissues	5	81-98	
7	Histology 2: Muscle and Nervous Tissues Integumentary System	5 6	98-110 111-126	
8	Skeletal System 1: Bone Tissue & Structure	7	127-140	
9	Skeletal System 2: The Skeleton Articulations (Joints)	8 9	141-182 183-202	
10	Muscle Tissue Muscular System	10 11	203-228 229-258	
11	Blood	19	433-452	
12	Cardiovascular System 1: Heart <i>Dissection: Sheep Heart</i>	16	361-384	
13	Cardiovascular System 2: Blood Vessel Anatomy Physiology: Pulse Rate and Blood Pressure	17 18	385-416 417-432	
14	Lymphatic System <i>Demonstration Dissection: Fetal Pig (Cardiovascular System)</i>	20	453-472	
15	<i>LAB FINAL & LAB PRACTICAL</i>			

LECTURE EXAMS *(may include laboratory material)*

	Tentative Date	Chapters covered
Lecture Exam #1		
Lecture Exam #2		
Lecture Exam #3		
Lecture Final Exam		

LAB EXAMS AND QUIZZES

	Tentative Date	Labs covered
Lab Exam #1		
Lab Exam #2		
Lab Exam #3		
Lab Exam #4*		
Lab Exam #5**		
Lab Final		