

## CUNY Common Core Course Submission Form

Instructions: All courses submitted for the Common Core must be liberal arts courses. Courses may be submitted for only one area of the Common Core. All courses must be 3 credits/3 hours unless the college is seeking a waiver for a 4-credit Math or Science course (after having secured approval for sufficient 3-credit/3-hour Math and Science courses). All standard governance procedures for course approval remain in place.

College	Kingsborough Community College
Course Number	Bio 11
Course Title	Human Anatomy and Physiology 1
Department(s)	Biological Sciences
Discipline	Human Anatomy and Physiology
Subject Area	<i>Life and Physical Sciences</i>
Credits	4
Contact Hours	7
Pre-requisites	Placement at the college level fro English and math.
Catalogue Description	A one-year, two-semester course in human anatomy and physiology. Examines complementary relationships between structure and function; dynamic aspects, integration of organs and organ systems in the maintenance of normal functioning of the whole organism. Dissections and other laboratory experiences including computer-assisted study of physiological principles.
Syllabus	See pages 6-10 of this document

### Waivers for 4-credit Math and Science Courses

All Common Core courses must be 3 credits and 3 hours.

Waivers for 4-credit courses will only be accepted in the required areas of Mathematical and Quantitative Reasoning and Life and Physical Sciences. Such waivers will only be approved after a sufficient number of 3-credit/3-hour math and science courses are approved for these areas.

If you would like to request a waiver please check here:	<input checked="" type="checkbox"/> Waiver requested
<b>If waiver requested:</b> Please provide a brief explanation for why the course will be 4 credits.	This course is a pre-requisite for allied health majors. The content of this course dictates that it be taught as a 4 credit course with a 4 hour lab.
<b>If waiver requested:</b> Please indicate whether this course will satisfy a major requirement, and if so, which major requirement(s) the course will fulfill.	This course satisfies the major requirements for Biology majors with the following transfer options: Occupational Therapy, Pharmacy, Physician's Assistant; it is also a degree requirement for students enrolled in the Physical Therapy Assistant Program. In addition, this course satisfies major requirements for Exercise Science Majors in the Dept. of health, Phys Ed and Recreation.

Indicate the status of this course being nominated:

xx  current course    revision of current course    a new course being proposed

CUNY COMMON CORE Location

Please check below the area of the Common Core for which the course is being submitted. (Select only one.)

Required

- English Composition
- Mathematical and Quantitative Reasoning
- Life and Physical Sciences

Flexible

- World Cultures and Global Issues
- US Experience in its Diversity
- Creative Expression
- Individual and Society
- Scientific World

Learning Outcomes

In the left column explain the assignments and course attributes that will address the learning outcomes in the right column.

I. Required Core (12 credits)

A. English Composition: Six credits

A course in this area must meet all the learning outcomes in the right column. A student will:

- Read and listen critically and analytically, including identifying an argument's major assumptions and assertions and evaluating its supporting evidence.
- Write clearly and coherently in varied, academic formats (such as formal essays, research papers, and reports) using standard English and appropriate technology to critique and improve one's own and others' texts.
- Demonstrate research skills using appropriate technology, including gathering, evaluating, and synthesizing primary and secondary sources.
- Support a thesis with well-reasoned arguments, and communicate persuasively across a variety of contexts, purposes, audiences, and media.
- Formulate original ideas and relate them to the ideas of others by employing the conventions of ethical attribution and citation.

B. Mathematical and Quantitative Reasoning: Three credits

A course in this area must meet all the learning outcomes in the right column. A student will:

- Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
- Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
- Represent quantitative problems expressed in natural language in a suitable mathematical format.
- Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
- Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.
- Apply mathematical methods to problems in other fields of study.

<b>C. Life and Physical Sciences: Three credits</b> A course in this area <u>must meet all the learning outcomes</u> in the right column. A student will:	
Students will participate in weekly laboratory exercises that require standard laboratory techniques including dissections and experimentation.	<ul style="list-style-type: none"> <li>Identify and apply the fundamental concepts and methods of a life or physical science.</li> </ul>
Students complete weekly laboratory assignments designed to utilize the scientific method, including investigations of the structure and function of various body systems.	<ul style="list-style-type: none"> <li>Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.</li> </ul>
Students utilize a variety of laboratory equipment including microscopy.	<ul style="list-style-type: none"> <li>Use the tools of a scientific discipline to carry out collaborative laboratory investigations.</li> </ul>
Students conduct weekly laboratory experiments that require data collection, analysis and reporting.	<ul style="list-style-type: none"> <li>Gather, analyze, and interpret data and present it in an effective written laboratory or fieldwork report.</li> </ul>
Students are required to write a research paper based on current peer-reviewed journal articles.	<ul style="list-style-type: none"> <li>Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.</li> </ul>

**II. Flexible Core (18 credits)**

Six three-credit liberal arts and sciences courses, with at least one course from each of the following five areas and no more than two courses in any discipline or interdisciplinary field.

**A. World Cultures and Global Issues**

A Flexible Core course must meet the three learning outcomes in the right column.

	<ul style="list-style-type: none"> <li>Gather, interpret, and assess information from a variety of sources and points of view.</li> </ul>
	<ul style="list-style-type: none"> <li>Evaluate evidence and arguments critically or analytically.</li> </ul>
	<ul style="list-style-type: none"> <li>Produce well-reasoned written or oral arguments using evidence to support conclusions.</li> </ul>

A course in this area (II.A) must meet at least three of the additional learning outcomes in the right column. A student will:

	<ul style="list-style-type: none"> <li>Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring world cultures or global issues, including, but not limited to, anthropology, communications, cultural studies, economics, ethnic studies, foreign languages (building upon previous language acquisition), geography, history, political science, sociology, and world literature.</li> </ul>
	<ul style="list-style-type: none"> <li>Analyze culture, globalization, or global cultural diversity, and describe an event or process from more than one point of view.</li> </ul>
	<ul style="list-style-type: none"> <li>Analyze the historical development of one or more non-U.S. societies.</li> </ul>
	<ul style="list-style-type: none"> <li>Analyze the significance of one or more major movements that have shaped the world's societies.</li> </ul>
	<ul style="list-style-type: none"> <li>Analyze and discuss the role that race, ethnicity, class, gender, language, sexual orientation, belief, or other forms of social differentiation play in world cultures or societies.</li> </ul>
	<ul style="list-style-type: none"> <li>Speak, read, and write a language other than English, and use that language to respond to cultures other than one's own.</li> </ul>

**B. U.S. Experience in its Diversity**

A Flexible Core course must meet the three learning outcomes in the right column.

	<ul style="list-style-type: none"> <li>• Gather, interpret, and assess information from a variety of sources and points of view.</li> </ul>
	<ul style="list-style-type: none"> <li>• Evaluate evidence and arguments critically or analytically.</li> </ul>
	<ul style="list-style-type: none"> <li>• Produce well-reasoned written or oral arguments using evidence to support conclusions.</li> </ul>

A course in this area (II.B) must meet at least three of the additional learning outcomes in the right column. A student will:

	<ul style="list-style-type: none"> <li>• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the U.S. experience in its diversity, including, but not limited to, anthropology, communications, cultural studies, economics, history, political science, psychology, public affairs, sociology, and U.S. literature.</li> </ul>
	<ul style="list-style-type: none"> <li>• Analyze and explain one or more major themes of U.S. history from more than one informed perspective.</li> </ul>
	<ul style="list-style-type: none"> <li>• Evaluate how indigenous populations, slavery, or immigration have shaped the development of the United States.</li> </ul>
	<ul style="list-style-type: none"> <li>• Explain and evaluate the role of the United States in international relations.</li> </ul>
	<ul style="list-style-type: none"> <li>• Identify and differentiate among the legislative, judicial, and executive branches of government and analyze their influence on the development of U.S. democracy.</li> </ul>
	<ul style="list-style-type: none"> <li>• Analyze and discuss common institutions or patterns of life in contemporary U.S. society and how they influence, or are influenced by, race, ethnicity, class, gender, sexual orientation, belief, or other forms of social differentiation.</li> </ul>

### C. Creative Expression

A Flexible Core course must meet the three learning outcomes in the right column.

	<ul style="list-style-type: none"> <li>• Gather, interpret, and assess information from a variety of sources and points of view.</li> </ul>
	<ul style="list-style-type: none"> <li>• Evaluate evidence and arguments critically or analytically.</li> </ul>
	<ul style="list-style-type: none"> <li>• Produce well-reasoned written or oral arguments using evidence to support conclusions.</li> </ul>

A course in this area (II.C) must meet at least three of the additional learning outcomes in the right column. A student will:

	<ul style="list-style-type: none"> <li>• Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring creative expression, including, but not limited to, arts, communications, creative writing, media arts, music, and theater.</li> </ul>
	<ul style="list-style-type: none"> <li>• Analyze how arts from diverse cultures of the past serve as a foundation for those of the present, and describe the significance of works of art in the societies that created them.</li> </ul>
	<ul style="list-style-type: none"> <li>• Articulate how meaning is created in the arts or communications and how experience is interpreted and conveyed.</li> </ul>
	<ul style="list-style-type: none"> <li>• Demonstrate knowledge of the skills involved in the creative process.</li> </ul>
	<ul style="list-style-type: none"> <li>• Use appropriate technologies to conduct research and to communicate.</li> </ul>

### D. Individual and Society

A Flexible Core course must meet the three learning outcomes in the right column.

	<ul style="list-style-type: none"> <li>• Gather, interpret, and assess information from a variety of sources and points of view.</li> </ul>
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	<ul style="list-style-type: none"> <li>Evaluate evidence and arguments critically or analytically.</li> </ul>
	<ul style="list-style-type: none"> <li>Produce well-reasoned written or oral arguments using evidence to support conclusions.</li> </ul>

A course in this area (II.D) must meet at least three of the additional learning outcomes in the right column. A student will:

	<ul style="list-style-type: none"> <li>Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the relationship between the individual and society, including, but not limited to, anthropology, communications, cultural studies, history, journalism, philosophy, political science, psychology, public affairs, religion, and sociology.</li> </ul>
	<ul style="list-style-type: none"> <li>Examine how an individual's place in society affects experiences, values, or choices.</li> </ul>
	<ul style="list-style-type: none"> <li>Articulate and assess ethical views and their underlying premises.</li> </ul>
	<ul style="list-style-type: none"> <li>Articulate ethical uses of data and other information resources to respond to problems and questions.</li> </ul>
	<ul style="list-style-type: none"> <li>Identify and engage with local, national, or global trends or ideologies, and analyze their impact on individual or collective decision-making.</li> </ul>

**E. Scientific World**

A Flexible Core course must meet the three learning outcomes in the right column.

	<ul style="list-style-type: none"> <li>Gather, interpret, and assess information from a variety of sources and points of view.</li> </ul>
	<ul style="list-style-type: none"> <li>Evaluate evidence and arguments critically or analytically.</li> </ul>
	<ul style="list-style-type: none"> <li>Produce well-reasoned written or oral arguments using evidence to support conclusions.</li> </ul>

A course in this area (II.E) must meet at least three of the additional learning outcomes in the right column. A student will:

	<ul style="list-style-type: none"> <li>Identify and apply the fundamental concepts and methods of a discipline or interdisciplinary field exploring the scientific world, including, but not limited to: computer science, history of science, life and physical sciences, linguistics, logic, mathematics, psychology, statistics, and technology-related studies.</li> </ul>
	<ul style="list-style-type: none"> <li>Demonstrate how tools of science, mathematics, technology, or formal analysis can be used to analyze problems and develop solutions.</li> </ul>
	<ul style="list-style-type: none"> <li>Articulate and evaluate the empirical evidence supporting a scientific or formal theory.</li> </ul>
	<ul style="list-style-type: none"> <li>Articulate and evaluate the impact of technologies and scientific discoveries on the contemporary world, such as issues of personal privacy, security, or ethical responsibilities.</li> </ul>
	<ul style="list-style-type: none"> <li>Understand the scientific principles underlying matters of policy or public concern in which science plays a role.</li> </ul>

**BIOLOGY 11: Human Anatomy and Physiology Spring 2012**  
**SYLLABUS AND COURSE INFORMATION PACKET**

**COURSE CO-COORDINATORS FOR BIOLOGY 11 & 12**

Dr. Mary Dawson S207 Ext. 5740 and Dr. Mohamed Lakrim S221 Ext. 5107

**Required Textbook and Laboratory Manual:**

1. Saladin, K.S: Anatomy and Physiology (5<sup>th</sup> ed.). New York: McGraw Hill Co. Inc., 2009.
2. Nicpon-Marieb, Elaine, Human Anatomy and Physiology: Laboratory Manual (Pig version, Tenth edition), Custom Version, Benjamin. Cummings Publishing Company, Redwood City, California 2009.

**Course Prerequisites:**

*Placement at the English 12 and Math 09 levels on the CUNY assessment tests.*

**Course Description:**

Biology 11 is the first semester of a one-year course in Human Anatomy and Physiology. Both Biology 11 and Biology 12 are designed to provide students with a thorough understanding of the basic principles inherent in the study of human anatomy and physiology, and is intended for students majoring in the allied-health professions, e.g. nursing, pre-physical therapy, pre-physicians assistant, etc. The emphasis of this course will be concerned with understanding the structural and functional relationships of the major organ systems of the human body. A special effort will be made to understand the concept of homeostasis and how the individual organ systems of the body interact with each other in the maintenance of the normal functioning of the entire organism.

Biology 11 combines both lecture and laboratory experiences over a twelve week period. Each week, the class meets for a three-hour lecture session, a one-hour recitation and a three hour laboratory session. Attendance at these sessions is mandatory, and excessive absences beyond the college regulations can result in a “WU” grade.

**Plagiarism as a violation of academic integrity** is the intentional use of another’s intellectual creation(s) without attribution. Determination and penalty—ranging from grade reduction to course failure—is at the sole discretion of the faculty member. If a faculty member suspects that a student has committed a violation of CUNY or KCC’s Academic Integrity Policy, he/she shall notify the student of the facts and circumstances of the suspected violation whenever possible. It is then at his/her discretion to seek an academic or disciplinary sanction.

## **PROGRAM GOALS FOR STUDENT OUTCOMES**

### **Allied Health Programs**

1. Demonstrate knowledge of basic concepts in anatomy and physiology.
2. Demonstrate proficiency in use of basic laboratory equipment and instruments.
3. Apply knowledge to distinguish normal from homeostatic imbalances.
4. Demonstrate basic computer skills and competence utilizing the Internet for solving problems.
5. Solve a biomedical problem through analysis and interpretation of tabulated and graphical data.
6. Demonstrate understanding of the scientific literature related to allied health fields through presentation of findings in written form and to an audience.

### **COURSE GOALS**

1. Demonstrate understanding of the scientific literature related to allied health fields through presentation of findings in written form and to an audience.
2. Solve a biomedical problem using biomedical knowledge, logic and reasoning skills.
3. Collect data and make sense of it through charts and graphs.
4. Carry out basic quantitative manipulations of biomedical data.
5. Analyze and interpret tabulated and graphical data.
6. Demonstrate knowledge of basic biomedical concepts.
7. Demonstrate proficiency in use of basic laboratory instruments.
8. Demonstrate basic computer skills and competence in use of the Internet.
9. Use knowledge and laboratory skills to recognize normal and disease states.
10. Develop and master the knowledge and biomedical skills to achieve career goals including acquisition of advanced training.

### **Required materials**

Required materials include textbook, laboratory manual, lab coat, gloves, goggles and dissecting instruments. Students will not be allowed in the lab without lab coat. Open toed shoes are not permitted in lab.

#### **Textbook for Biology 11 and Biology 12:**

Saladin, Ken Human Anatomy and Physiology: The Unity of Form and Function. , Fifth Edition, McGraw-Hill Publishing Company, 2009.

#### **Laboratory Manual for Biology 11 and 12:**

Nicpon-Marieb, Elaine, Human Anatomy and Physiology: Laboratory Manual (Fetal Pig Version, Ninth edition), , Benjamin-Cummings Publishing Company, Redwood City, California 2009.

## Reading Assignments

To obtain the maximum advantage from the required readings, you should complete the readings **before** coming to class for the week in which the assignments are given. The lecture syllabus lists the reading assignments that will prepare you for the lectures and laboratory exercises for that particular week and refers to reading assignments in your textbook. The sequence of laboratory exercises lists reading assignments in the laboratory manual. It is very important for you to be familiar with the laboratory exercises before performing the experiments or procedures described in the manual. The benefits that you will derive by completing the readings for lecture and laboratory **prior** to the week for which they are assigned are as follows:

1. You will find that it is easier to understand the lecture and laboratory material because you already have some background regarding the topics that are to be covered.
2. The reading assignments for lecture and laboratory are directly related to the topics that will be covered. If you are already familiar with these topics, you will find that you will be able to take fewer and better notes and pay more attention to what the lecturer is saying.
3. Prior reading of the assignments can help you to pinpoint areas in which you may be giving you some difficulty. You then can pay very special attention to what the lecturer is saying when discussing these same topics.
4. Reading the assigned material for the laboratory in both the textbook and laboratory manual **prior** to coming to laboratory will help you to get the maximum benefits from your laboratory experiences. Having relevant background information will help you to better understand the laboratory exercises.

## Grade Determination:

1. **Laboratory:** The laboratory portion of Biology 11 represents 50% of the course grade. The grade for laboratory will be based on your quiz grades, the writing assignments, and other factors that will be explained to you by your laboratory instructor.
2. **Lecture:** There will be several unit exams that will be administered during the semester **determined by the individual instructor**. The unit examinations will represent 30% of your grade. The final examination will account for 20% of your grade.

### 3. Summary of the grading procedures:

Laboratory quizzes (35%), papers, lab practicals and reports, ...etc (15%).	=	50%
Unit examinations	=	30%
Final examination	=	<u>20%</u>
<b>Total</b>	=	<b>100%</b>

## Lecture Syllabus (*Textbook*)

### Week #

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- 1. The Human body:** An orientation: an overview of Anatomy and Physiology. Levels of structural organization. Homeostasis. The language of anatomy. **Chapter 1 and Atlas A.**
- 2 Chemistry:** Chemistry comes alive: **Part 1: Basic chemistry.** Composition of matter. How matter is combined. Chemical bonds. Chemical reactions. **Part 2: Biochemistry:** Inorganic and organic compounds. **Chapter 2.**
- 3 Cells:** The living units. Overview of the cellular basis of life. The plasma membrane, structure and functions. The cytoplasm. The nucleus. Cell cycle and organelles. **Chapters 3 and 4.**
- 4 Tissue:** The living fabric. Epithelial, connective, nervous and muscle and tissues. Tissue repair. **Chapter 5.**
- 5 The Integumentary System:** The skin. Appendages of the skin. Functions of the integumentary system. **Chapter 6.**
- 6 Bones and Skeletal Tissues: skeletal cartilages.** Classification of bones. Bone structure. Bone development. Bone homeostasis: bones remodeling and repair. **Chapter 7.**
- 7 Joints:** Classification. Fibrous, cartilaginous and synovial joints. **Chapter 9.**  
**Muscles and muscle tissue: Overview of muscle tissue. Skeletal muscles gross anatomy.**  
**Chapter 11.**
- 8 The Muscular System: Muscle tissue. Muscle physiology:** sliding filament theory; muscle metabolism; treppe, twitch, tetanus; fast and slow muscle fibers. **Chapter 11.**
- 9 Nerve Tissue:** Neurons and glia; resting membrane potential; neuronal pools and circuits; neurotransmitters. **Chapter 12.**
- 10 The Central Nervous system. The brain.** Higher mental functions. Protection of the brain. The spinal cord. **Chapters 13 (pp 482-490) and 14.**
- 11 The Peripheral Nervous System (PNS) and reflex arc.** Peripheral receptors: organization and classification. Gross anatomy of peripheral nerves. **Chapters 13 (490-511).**  
**The Autonomic Nervous System.** Anatomy; comparison to somatic nervous system; neurotransmitters and receptors. **Chapter 15.**
- 12 The Endocrine System: An overview. Hormones. Major endocrine organs.** Other hormonal producing structures. **Chapter 17.**

## Laboratory Syllabus (*Laboratory Manual*)

### Week #

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#### 1 Scientific method and metric system.

**The language of anatomy:** Anatomical position, surface anatomy, body planes and sections, body cavities.

**The microscope:** Parts; magnification and resolution. Viewing cells under the microscope; examination of pond water.

#### 2 Organ system overview: Rat dissection. Identification of the major organ using the dissected rat and the torso models. **Matter and Energy.** Elements, atomic structure, chemical bonds, pH, chemical reactions, synthesis of iron sulfate

#### 3 **Macromolecules:** study and chemical detection. **The Cell.** Transport mechanisms and cell permeability: **Passive** processes (diffusion-osmosis and filtration), **active processes**

#### 4 **The cell:** Anatomy of the composite cell. Differences and similarities in cell structure. Cell division. **Review of the microscope from the Lab #1. Epithelial Tissue.** Cheek cell smear; Scientific drawings. Classification of covering and lining membranes. **Implement the microscope assessment tool (or next week).**

#### 5 **Connective Tissue.** scientific drawings

**Introduction to the integumentary system and the skin.** Basic structure of the skin and accessory organs of the skin. Cutaneous glands.

#### 6 **Introduction to the study of the skeletal system.** Study of the appendicular and axial skeleton. Assembly of disarticulated skeleton. The fetal skeleton.

#### 7 **Articulations and body movements.** Study of the three major types of articulations, joint disorders and types of body movement.

#### 8 **Gross and microscopic study of the three muscle types.** Identification of selected muscle groups using the human torso model. **Physiology of skeletal muscle. Muscle Physiology Computerized Simulations**

#### 9 **Histology of nervous tissue. Gross anatomy, histology and physiology of the spinal cord.** Study of the anatomical aspects of the Autonomic Nervous System. **Reflex physiology and Computerized Reflex Simulations.**

#### 10 **Gross neuroanatomy: Sheep brain dissection.** Study of the preserved human brain and models of the human brain

#### 11 **Senses: Vision:** Gross anatomy of the eye Dissection of the cow eye. Visual acuity and color blindness tests. Microscopic examination of the retina. **Implement vision assessment tool here.**

#### 12 **Senses: Audition:** Hearing and equilibrium. Gross anatomy of the human ear (using models of the human ear). Auditory acuity and equilibrium tests. Microscopic anatomy of the Organ of Corti. Selected experiments dealing with the gustatory and olfactory senses. !

**N.B.: Students are required to bring their own dissecting instruments and gloves for dissection during the weeks 2, 10 and 11.**