

**Kingsborough Community College
The City University of New York
Professor. M. Esposito**

**BIO 18: Biology of the Human Body
3 credits, 4 hours (Lecture and Lab)**

Course Syllabus

Course Description: For non-science majors and those who plan to transfer to senior colleges within CUNY. This course will offer a one-semester overview of anatomy and physiology of all organ systems of the human body. The interrelationships between organ systems will be emphasized to provide a holistic view, practical applications to healthcare and reinforcement of health literacy skills. Through lecture and discussion, the processes of the human body will be explored. For each topic, interactive lab experiences involving application of the process of scientific inquiry will be conducted. In addition, current ethical issues in medicine and healthcare will be studied. **This course satisfies the CUNY common core requirement for a course in life and physical sciences.**

Prerequisites/co-requisites: Enrollment in the College Now Program

Textbook: Betts, J; Young, K; et. al; Anatomy and Physiology 2e. **Digital:** ISBN-13: 978-1-951693-42-8
-The textbook for the lecture portion of this course is available for free from Openstax.org by following the link below. The textbook can be viewed online or downloaded in pdf format.
-<https://openstax.org/details/books/anatomy-and-physiology-2e?Book%20details>

Attendance Policy: Attendance and punctuality are integral to success in this course, and in the future careers of students.
-Students with more than **4 unexcused absences** over the course of the **term** will receive a penalty to their final grade of **1 point per absence after the first 4.**
-For the sake of this calculation, **3 latenesses will also count as 1 unexcused absence.**
-Excessively late or absent students may also be dropped from the course.
-**If you cannot be present and on time daily, then this is not the course for you.**

Learning Outcomes:

1. Demonstrate knowledge of basic concepts of anatomy and physiology.
2. Identify and apply the fundamental concepts of and methods of biology as they apply to the human body.
3. Apply the scientific method to the study of human anatomy and physiology, including hypothesis development, observation, experimentation, measurement, data analysis and presentation.
4. Use the tools of biomedical research to carry out collaborative laboratory investigations.
5. Gather, analyze, and interpret data and present it in an effective written laboratory report.
6. Identify and apply biomedical research ethics and unbiased assessment in gathering and reporting scientific data.

Required Materials: None

Accessibility Statement: Any student with a documented need for accessibility may be eligible for reasonable accommodations. Students should communicate with me as soon as possible regarding their eligibility for accommodations in the course.

Academic Integrity: Academic dishonesty is not tolerated in this course. **Students reasonably suspected of engaging in academic dishonesty on exams, projects, labs or other assignments will receive a grade of 0 on that assignment with no make-up. Such students may also be removed from the course. Looking at another student's work or having a cell phone or smart watch out for ANY reason during an exam will result in a 0 on that exam with NO make-ups.**

Civility Statement: As an institution of higher education, Kingsborough Community College and its faculty and staff are committed to its entire student body. As such, we strive to interact with each student equitably and professionally while providing an environment of mutual respect and civility. In the event a student has an allegation charge brought against him/her that is a breach of the Henderson Rules to Maintain Public Order or the Campus Code of Conduct, an immediate investigation will commence followed by a conciliation conference to determine the appropriate outcome within a thirty day period. The Judicial Affairs process at Kingsborough Community College is critical in providing an agenda for safety, yet simultaneously offering protection of the rights of students who may have been accused of being in violation of the Henderson Rules to Maintain Public Order and/or the Campus Code of Conduct. These rights have been afforded to each Kingsborough student under the bylaws that were established in 1969.

Equity Statement: It is the goal of this class to create a learning environment that supports a diversity of thoughts, perspectives, and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.). Please let me know if you have a preferred pronoun or name you wish for me to use in class, or if you ever feel that any of the information presented feels biased, and I will happily address your concerns to the best of my ability.

Method of Evaluation:

<u>Assignment</u>	<u>Percentage of Grade</u>
Exams (Lowest exam dropped. NO MAKE-UPS.)	30%
Lab reports and assignments	25%
Daily participation questions	25%
Final Exam, cumulative	20%

Total 100%

Grading Conversion for Kingsborough Grade:

90-100 = A	77-79 = B-
87-89 = A-	74-76 = C+
84-86 = B+	65-73 = C
80-83 = B	60-64 = D
	Less than 60 = F

Exam Content Outline:

- **Exam #1:** Weeks 1-3: Anatomical Terminology, Chemistry, and The Cell.
- **Exam #2:** Weeks 4-6: Tissues, Integumentary System, Skeletal System, Muscular System.
- **Exam #3:** Weeks 7-9: The Nervous System, The Endocrine System.
- **Exam #4:** Weeks 10-12: The Circulatory, Lymphatic, and Immune Systems.
- **Exam #5:** Weeks 13-15: The Respiratory System

Note on dissections: This class will have multiple real dissections. Though nobody will be forced to directly handle or dissect the organs if they do not wish to, all students are expected to attend the dissections and complete the related assignments and coursework.

Topical Outline:

Week 1: Anatomical Terminology and Intro to Anatomy.

- *Directional terms, body planes, and body cavities.*
- *Abdominal quadrants and regions.*
- *Body landmarks.*
- *Diagnostic imaging (X-Ray, CT, MRI, PET)*

Week 2: The Chemistry of Life.

- *Minerals, electrolytes, and water.*
- *Chemical reactions, organic chemistry, and nucleic acids.*

Week 3: The Cell.

- *Transport across the cell membrane.*
- *DNA Replication, Mitosis, Differentiation*

Week 4: Tissues and The Integumentary System.

- *Epithelial tissue.*
- *Connective tissue.*
- *The epidermis.*
- *The dermis and skin color.*

Week 5-6: The Skeletal System.

- *Microscopic bone structure.*
- *The axial skeleton.*
- *The appendicular skeleton.*
- *Joints.*

Week 6-7: The Muscular System.

- *Skeletal muscle structure.*
- *Excitation-contraction coupling and muscle contractions.*
- *Muscles of the shoulders, chest, back, and abdomen.*
- *Muscles of the head, neck, arms, and legs.*

Weeks 8-10: The Nervous System.

- *Nervous system structure, function, neurons, and glial cells.*
- *Excitable membranes, ion channels, and action potentials.*
- *The Brain: Cortical Structures.*
- *The Brain: Deep structures.*
- *Cranial Nerves.*
- *Sensory receptors, modalities, gustation (taste), and olfaction (smell)*
- *Audition (hearing) and Equilibrium (balance)*
- *Somatosensation (touch), Eye anatomy, and vision.*

Weeks 11-12: The Circulatory System

- *Intro to blood, hematopoiesis, and blood typing.*
- *Erythrocytes, leukocytes, and platelets.*
- *Anatomy of the heart and coronary vessels.*
- *Electrical activity of the heart and cardiac output.*
- *Blood vessel structure, function, flow, and resistance.*
- *Key vessels of the human body.*

Week 13: The Lymphatic and Immune Systems

- *Lymphatic anatomy and lymphoid organs.*
- *Nonspecific immunity.*
- *Adaptive Immunity (T-Cells and B-cells).*

Week 14: The Respiratory System

- *The nose, throat, and lungs.*
- *Breathing and gas exchange.*
- *Transport of gasses.*