


HUMAN BIOLOGY

COURSE SYLLABUS

Course Code	Credit Hours
BIO 1100	3 credits (3 hrs meeting once a week for 15 weeks)
COURSE DESCRIPTION	
<p>This course will include selected biological concepts, including the chemical basis of life, cell structure and division, a broad survey of the major systems of the human body with a special emphasis on human health disease, human evolution and ecology. This course should provide students who do not plan to continue in the sciences or pre-health programs with a working knowledge of life science that will be useful in making informed decisions on health and the environment</p>	
COURSE CO/PREREQUISITE(S)	
<p>CUNY proficiency in reading, writing (or concurrent enrollment in ENG 092W, ESOL 021W, or ESOL 031W) and math (or concurrent enrollment in MAT 0650).</p>	
Course Website	
<p>https://openlab.citytech.cuny.edu/oer-human-biology/</p>	
Required Text	
<p>Free Human Biology (BIO1100) manual PDF  available at: https://openlab.citytech.cuny.edu/oer-human-biology/coursebook/</p>	
Material Needed	
<p>Lab coat, dissection kit, disposable nitrile gloves</p>	
Grading	
<p>Average on 4 exams: 60%, Average on Quizzes and Reports:20%, End of Semester Presentation:10% and Participation/Attendance: 10%</p>	
Course Coordinators	
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GRADING SCALE

Grade	Percentage
A	93-100
A-	90-92.9
B+	87-89.9
B	83-86.9
B-	80-82.9
C+	77-79.9
C	70-76.9
D	60-69.9
F	59.9 and below

ALL GRADES ARE COUNTED; NONE ARE DROPPED NOR ARE THEY CURVED. NO MAKE-UPS ARE GIVEN EXCEPT AT THE DISCRETION OF THE INSTRUCTOR PENDING SUBMISSION OF WRITTEN PROOF OF REASON FOR ABSENCE

SCOPE OF ASSIGNMENTS and other course requirements

Assignments for this course will include written lab reports based on lab exercises and summaries of articles on topics of human health and disease and relevant to the subject material taught in class. Lab reports are intended to provide students with an opportunity to learn how to write technical scientific reports and how to present the scientific data with logical conclusions in a coherent and concise manner. Summary of general science articles (posted on the Blackboard) is intended to provide students with an opportunity to see how biological principles taught inside the classroom are relevant in the context of human disease and how biologists communicate and share the knowledge with each other and with other members of the community. Lecture material including notes, power point slides, videos, animations, and additional readings will be posted on the Blackboard. Students will be required to use Blackboard extensively to study the lecture material due to limited time for lecture in the class. Lecture exams will include multiple choice questions, fill in the blanks, labeling of structures, and short answer questions.

ACADEMIC INTEGRITY POLICY STATEMENT

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog. "Academic dishonesty includes any act that is designed to obtain fraudulently, either for oneself or for someone else, academic credit, grades, or any other form of recognition that was not properly earned. Academic dishonesty encompasses the following:

Cheating: Defined as intentionally giving, receiving, using or attempting to use unauthorized materials, information, notes, study aids, including any form of unauthorized communication, in any academic exercise. It is the student's responsibility to consult with instructors to determine whether or not a study aid or device may be used.

Plagiarism: Plagiarism is intentionally and knowingly presenting the ideas or works of another as one's own original idea or works in any academic exercise without proper acknowledgement of the source. The purchase and submission of a term paper, essay, or other written assignment to fulfill the requirements of a course, and violates section 213-b of the State Education Law. This also applies to the submission of all or

substantial portions of the same academic work previously submitted by the student or any other individual for credit at another institution, or in more than one course.

ACCESSIBILITY STATEMENT

- City Tech is committed to supporting the educational goals of enrolled students with disabilities in the areas of enrollment, academic advisement, tutoring, assistive technologies and testing accommodations. If you have or think you may have a disability, you may be eligible for reasonable accommodations or academic adjustments as provided under applicable federal, state and city laws.
- You may also request services for temporary conditions or medical issues under certain circumstances. If you have questions about your eligibility or would like to seek accommodation services or academic adjustments, please contact the Center for Student Accessibility at 300 Jay Street room L-237, 718 260 5143 or <http://www.citytech.cuny.edu/accessibility/>.

SEQUENCE OF TOPICS, ACTIVITIES & EXAMS

	Topics	Activities
Week 1	Introduction: biology, the process of science and the metric system	Living Things concept map Scientific method case studies
Week 2	Human Evolution and Ecology: who are we and where are we?	Group discussions Fact/Fiction/Opinion Humans and their environment diagram
Week 3	Cells: the smallest unit of life	Microscope use / Making wet mounts Prokaryotic and eukaryotic cells observation
Week 4	Making More Cells: mitosis and meiosis or when dividing is multiplying	Observing cell division: live yeasts, prepared slides and videos
Exam 1		
Week 5	Tissues, Organs and Homeostasis: for better or worse	Observing preserved tissues slides Cheek cells staining and identification
Week 6	Blood and the Cardiovascular System: our transportation system	Blood typing Blood pressure measurements
Week 7	The Digestive System: have a snack	Digestive system concept map Enzymatic assay of starch digestion by salivary amylase
Week 8	The Respiratory System: take a breath	Rat dissection (organs of the thoracic and abdominal cavities)
Exam 2		
Week 9	The Muscular and Skeletal Systems: supporting movements	Observations of human skeletal and musculature models, bones Observation of muscle & bone tissue slides

Week 10	The Reproductive System and Development: what it took to make you	Observation of reproductive anatomy models Videos on fertilization and early development Rat dissection Organs of the abdominopelvic cavity
Week 11	The Urinary System: to pee or not to pee	Observation of kidney models Urinalysis
Week 12	Exam 3	
Week 12	The Nervous System: hitting a nerve	Observation of brain anatomy models Sheep brain dissection Testing reflexes and sensations
Week 13	The Endocrine System: being hormonal The Immune System: to fight and protect	Video on the endocrine system and role of hormones in diabetes Discussion on vaccination
Week 14	What Do We Know Now? (semester review)	<u>Graded Activity:</u> Discussing health and Diseases: various case studies/articles selected and presented by students working in groups and moderated by instructor (ageing, cancer, high blood pressure, lung cancer, obesity, dialysis, kidney stones, contraception, sterility, STDs, diabetes, dementia, Alzheimer's, Parkinson's, osteoporosis, etc...)
Week 15	Exam 4	

CUNY PATHWAYS INTENDED LEARNING OUTCOMES/ASSESSMENT METHODS

LEARNING OUTCOMES	ASSESSMENT METHODS
Identify and apply the fundamental concepts and methods of a life or physical science.	Students will learn about cell division including mitosis and meiosis and will identify various phases of cell division using prepared slides of cells showing cell division using a compound light microscope. Regulation of cell division will be discussed in the context of normal physiology and diseases like cancer.
Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.	Students will perform experiments on cardiovascular physiology which will include measuring heart rate and blood pressure and comparing those parameters at rest versus moderate and extreme physical activity. Students will formulate a clear hypothesis, conduct the experiment, collect and analyze the data and present the data.
Use the tools of a scientific discipline to carry out collaborative laboratory investigations.	Students will perform group experiments on blood typing where they will determine the specific blood groups of ABO system and Rh factor using antibodies as specific probes to detect specific antigens on the surface of red blood cells. Students will also study cell morphology and learn to identify specific blood cells based on differential staining and visualizing cells using microscopes.
Gather, analyze, and interpret data and present in an effective written laboratory or fieldwork report.	Students will gather, analyze, and interpret data from three different lab exercises including blood pressure measurements, respiratory measurements using spirometer, and urine analysis of several mock urine samples mimicking both health and disease conditions. Students will present these data in three separate written lab reports.
Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.	Students will report unaltered data in the lab reports with the use of proper citations to introduce a topic and support their conclusions.

COURSE INTENDED LEARNING OUTCOMES/ASSESSMENT METHODS

LEARNING OUTCOMES	ASSESSMENT METHODS
1. Students should understand the characteristics of life, organization of living organisms starting from the smallest atom, cell structure and functions.	1. Evaluation of answers on timed exams and quizzes that will include multiple choice, true and false and short answer questions.
2. Students should know the major type of tissues in human body and how these tissues form various organs. Students should also understand the regulation of functions of various organs and how homeostasis is significant in health and disease.	2. Evaluation of answers on timed exams and quizzes. Assessment will include questions that will test students' ability to remember information, understand information, and apply information in certain situations. Questions will include multiple choice, labeling of figures and structures, fill in the blank, true and false, and short answer questions.

3. Students should have a good understanding of the functions of various organ systems in human body with an emphasis on human health and disease.	3. Evaluation of written assignments; students will be required to summarize articles on topics related to human diseases in the context of different organ systems.
4. Students should be able identify parts of the rat anatomy and know the functions of various organs and organ systems.	4. Evaluation of answers on practical midterm and final exams where students will be required to identify and label parts of the rat anatomy.