Kingsborough Community College, The City University of New York
Department of Biological Sciences

Syllabus BIO 100
THE CUNY COMMON CORE: SELECTED TOPICS IN BIOLOGY
(3 credit and 3 hours)

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Course description: For non-science majors and those who plan to transfer to senior colleges within CUNY. Through lecture and discussion, selected biological topics, such as evolution, ecology, genetics, and human biology will be explored. For each topic, interactive computerized lab experiences involving formulating hypotheses and the process of scientific inquiry will be conducted. In addition, current ethical issues in science will be studied. This course satisfies the CUNY Common Core Requirement for a course in Life and Physical Sciences.

Credits/hours: 3 credits, 3 hours per week

Textbook: We will be using **free** online openstax book titled "Concepts of Biology"
The online link to the book is: https://openstax.org/details/books/concepts-biology

Lab information: Labs will be performed online. We will be using a software called SimUText and students will be required to purchase access to these labs. Link for registration to SimUtext labs and more information is posted **on Blackboard**.

Course Goals for student learning outcomes

1. Identify and apply the fundamental concepts and methods of biology.

2. Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.

3. Use the tools of a scientific discipline to carry out collaborative laboratory investigations.

4. Gather, analyze, and interpret data and present it in an effective written laboratory or fieldwork report.

5. Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.

Grading Policy:

3 Lecture Exams:	30%
1 Final Exam:	15%
SimUText lab reports:	30%

Assignments/activities: 25% (these include class discussions, writing assignments, group work, presentations etc.)
This is a 12-week, asynchronous, online course.

• This course is organized into weekly learning modules. Below is the summary of topics and resources on weekly basis. The details about assignments/tests/activities are posted on Blackboard.

Week #	Topics	Resources (Chapters are from ebook: https://openstax.org/details/books/concept biology)
1	**The Process of Science/The Scientific Method** Steps of scientific method. Writing assignment on Scientific method (coral bleaching study) Making observations: In class case study to evaluate whether MMR Vaccination increases risk of autism in children *SimUText Lab 1: Understanding Experimental design*	Chapter 1 (Topic 1.2) https://openstax.org/books/concepts-biology/pages/1-2-the-process-of-science Lecture videos, powerpoints, and weblinks are provided on Blackboard
2	**Characteristics/Properties of life** Life's diversity (classification: kingdoms) Eukaryotes vs prokaryotes Online Activity: Observing the characteristic of life.	Chapter 1 (Topic 1.1) https://openstax.org/books/concepts-biology/pages/1-1-themes-and-concepts-of-biology Chapter 3 (Topic 3.2) https://openstax.org/books/concepts-biology/pages/3-2-comparing-prokaryotic-and-eukaryotic-cells Chapter 12 (Topic 12.1) https://openstax.org/books/concepts-biology/pages/12-1-organizing-life-on-earth Chapter 13 (Topic 13.1-13.4) https://openstax.org/books/concepts-biology/pages/13-introduction

		Lecture videos, powerpoints, and weblinks are provided on Blackboard
3	**Evolution** Principle: Darwin's observations and deductions Natural selection Evidence: Fossil record, Comparative anatomy & physiology (form/function) *SimUText Lab 2: Darwinian snails*	Chapter 11 (Topics 11.1 to 11.5) https://openstax.org/books/concepts-biology/pages/11-introduction Lecture videos, powerpoints, and weblinks are provided on Blackboard
4.	**Evolution** Adaptations and extinction Human Evolution - Did humans evolve from monkeys? Evolution of human skin color Students will go to The American Museum of Natural History: Hall of Man (independent)	Lecture videos, powerpoints, and weblinks are provided on Blackboard Topic not covered in ebook
5.	**Ecology** Population and community ecology Organization: population, community, ecosystems, biome and biosphere Populations: importance of growth and size. Impact of human population on the environment Population examination and Analysis of population data *SimUText Lab 3 Isle Royale*	Chapter 19 (Topic 19.1 to 19.4) https://openstax.org/books/concepts-biology/pages/19-introduction Lecture videos, powerpoints, and weblinks are provided on Blackboard
6.	**Ecology**:	

	Food chain, food web and trophic levels Biomes and the biosphere Changes in ecosystems over time *SimUText Lab 4 Nutrient pollution*	Chapter 20 (Topics 20.1 to 20.4) https://openstax.org/books/concepts-biology/pages/20-introduction Lecture videos, powerpoints, and weblinks are provided on Blackboard
7.	**Ecology: Human impact on the Biosphere** Global warming, Pollution, Population explosion, Feeding the population Fossil fuels, Alternative energy sources	Chapter 21 Topics (21.1 to 21.3) Lecture videos, powerpoints, and weblinks are provided on Blackboard
8	**Current topics in biology: Diseases** Introduction to diseases Virus replication basics Spread of diseases: Understanding epidemic, pandemic SimUText Lab 5: How diseases spread	Chapter 17 (Topics 17.1) https://openstax.org/books/concepts-biology/pages/17-1-viruses Lecture videos, powerpoints, and weblinks are provided on Blackboard
9	**Current topics in biology: Food and Nutrition** Labels: RDA and nutritional information Organic foods: pros and cons Genetically modified foods Ethical concerns Analysis of food labels.	Chapter 2 (Topic 2.3) https://openstax.org/books/concepts-biology/pages/2-3-biological-molecules Lecture videos, powerpoints, and weblinks are provided on Blackboard
10	**Current topics in biology: The Human Body and Wellness**	Lecture videos, powerpoints, and weblinks are provided on Blackboard

	Obesity Heart Disease Why are certain populations at greater risk? Is there an ethical issue? Assessing your health risk BMI calculation	Topic not covered in ebook.
11	**Bioethics** Introduction to ethics and ethics in science Case study Discussion board assignment	Weblinks are provided for this topic
12	**Case study: Opioid crisis** Introduction to opioids Differentiate two treatments for opioid addiction, OAT and MAT Writing assignment	Case study instructions to be provided by instructor

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