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

GENERAL BIOLOGY II - BIO 220
4 credits. 3-hr. lecture/3-hr. lab/1hr. recitation

COURSE DESCRIPTION:

This is the second part of two courses in biological science intended for students preparing for careers in science. Lecture topics include the theory of evolution by natural selection, the evolution and diversity of organisms and their classification into domains and kingdoms. The student will learn about animal nutrition, circulation, gas exchange, homeostasis, immunity, nervous control, reproduction and development and ecology.

COURSE OUTCOMES:

By the end of the course, students will:

1. Defend a scientific point of view about evolutionary theory.
2. Interpret and know the concepts of biodiversity and ecology from a civic engagement perspective and take a position regarding the current global environment situation.
3. Comprehend the anatomical and physiological aspects of the living organisms from an evolutionary point of view.
4. Interpret essential biology concepts from molecular to ecological level of organization.
5. Enhance their laboratory skills and critical thinking skills.
6. Reinforce the capacity to search, evaluate, and discuss scientific information.

Prerequisites: *BIO 210*

TEXTBOOK: *Biology* by Neil A. Campbell, Jane B. Reece (Eight Edition), Benjamin Cummings. **www.campbellbiology.com**

Course Schedule

DATE	**CHAPTERS**	**PAGES**
Week 1	25. The History of Life of Earth	507-535
	22. Descent with modification	452-467
	23. Evolution of Populations	468-486
	24. Origin of Species	487-506

Week 2	26. Phylogeny and the Tree of Life 27. Bacteria and Archaea	536-555 556-574
Week 3	28. Protists 29,30. Plant Diversity	575-599 600-635
Week 4	35. Plant Growth & Development	738-754
Week 5	36. Transport in Plants 38. Angiosperm Reproduction 31. Fungi	764-785 801-820 636-653
Week 6	32. An Introduction to Animal Diversity	 654-665
Week 7	33. Invertebrates	638-670
Week 8	34. Vertebrates 41. Animal Nutrition	671-706 844-864
Week 9	42.Circulation/Gas Exchange	867-896
Week 10	43. Immune System 44. Osmoregulation & Excretion	898-918 922-938
Week 11	45. Hormones & Endocrine System	943-960
Week 12	46. Animal Reproduction 47. Animal Development	964-984 987-1007
Week 13	48. Nervous System	1011-1040
Week 14	49. Sensory/Motor Mechanisms 52,53. Ecology	1045-1075 1136-1155, 1159-1183
Final Exam Week:	**Final Exam**	

LABORATORY EXERCISES - GENERAL BIOLOGY II – BIO 220

LABORATORY MANUAL: *BIOLOGY: Laboratory Manual*, by Darrell S. Vodopich, Randy Moore, McGraw-Hill Higher Education

Week 1	1- Human Evolution	Exercise 19, page 205
2	2- Natural selection - green algae	Exercise 18, page 191
3	3- Bacteria and Kingdom Protista, Fungi (Archaebacteria & Bacteria)	Exercise 24-27 (parts) Page 251-289
4	4-Lower Plants (Seedless Plants) Molds/Fungi/Mushrooms/Lichens	Exercises 28 , page301
5	5- Seed Plants (Monocot/Dicot)	Exercise 32, page 347

6	*Workshop (Information Literacy)* 6- Animal Kingdom (Simple Animals): Mollusks/Annelids/Arthropods	Exercises. 36-39, page 387-427
7	7-Survey of the Animal Kingdom (Echinoderms/Chordates)	Exercise 40, page 440
8	8-Vertebrate Animal Tissues Epithelial/Connective/Muscular/Nervous	Exercise 41, page 461
9	9-Circulation and Blood Pressure Heart Dissection/Blood Pressure/Blood	Exercise 45, page 499
10	10-Respiration System ***Oral Presentation Preparation (date subject to change)***	Exercise 44, page 489
11	11- Sensory Perception. Senses *Oral Presentation: Collaborative Assignment (date subject to change)*	Exercise 49
12	12- Sensory Perception. Senses	Exercise 46, page 513
13	13- Ecology ***- Integrative Assignment Assessment***	Exercise 20, page 315
14	***One lab session (TBA) will be used for assignment oral presentations. Hence the sequence of labs is subject to rescheduling.***	
15: Final Lab Exam	**Final Integrative Exam***	

RECITATION EXERCISES - GENERAL BIOLOGY II – BIO 220

These activities can be addressed with specific questions from the book chapters, assigned readings or case studies. Suggested topics:

Week 1	Evolution has no goal.
Week 2	Evolution of HIV and influenza viruses.
Week 3	Terrestrial Plant Adaptations
Week 4	Pollination
Week 5	Biodiversity: Invertebrates
Week 6	Biodiversity: Vertebrates
Week 7	Animal Nutrition; Metabolism*
Week 8	Homeostasis*: Cardiovascular System
Week 9	Homeostasis*: Excretory System. Osmosis*. Dialysis*
Week 10	Homeostasis*: Endocrine System
Week 11	Reproductive System and Development. Stem Cells
Week 12	Nervous System
Week 13	Ecology. Climate Change and Biodiversity
Week 14	Review

** Some important difficult-to-understand concepts from BIO 210 will be revisited in BIO 220.*