Kingsborough Community College
The City University of New York
Department of Physical Sciences
SCI 5100 – PHYSICAL SCIENCES AND THE ENVIRONMENT (WITH LABORATORY)
Syllabus

SCI 5100 – PHYSICAL SCIENCES AND THE ENVIRONMENT (WITH LABORATORY) (3 crs. 5 hrs.)
An investigation of important topics that involve the state of the environment from a scientific perspective. This course will cover topics that include global warming, stratospheric ozone depletion, acid rain, the carbon and nitrogen cycles, chemical and industrial pollution, the impact of fossil fuels, nuclear energy, and treatment. The gathering, analysis, interpretation, and presentation of scientific data. The measure of selected physical, chemical and geological properties that influence the structure and function of ecological systems. Selected standard techniques used to observe, sample and describe natural systems.

Section: SECTION NUMBER Time: LECTURE AND LABORATORY SCHEDULE FOR SECTION
Room: ROOM (S) FOR SECTION
Instructor: INSTRUCTOR FOR SECTION Email: EMAIL ADDRESS FOR INSTRUCTOR FOR SECTION
Office Hours: OFFICE HOURS FOR INSTRUCTOR FOR SECTION

Source materials Withgott, J. and Brennan, S.(2008) *Environment: The Science Behind the Stories* 4th Ed Pearson Benjamin Cummings Publisher Scientific calculator – You may not use a cell phone as a calculator on an exam!

Student Learning Outcomes Students will:
1. understand the basic principles of physics and chemistry as they apply to the environment.
2. learn the chemical structure and physical properties of that influence the structure and function of ecological systems
3. be able relate the chemical structure and physical properties of the environment to the function of ecological systems.
4. understand how the chemical structure and physical properties of the environment relate to global warming, stratospheric ozone depletion, acid rain, the carbon and nitrogen cycles, chemical and industrial pollution, the impact of fossil fuels, nuclear energy, and treatment.
5. apply the basic techniques of the physical and chemical sciences in laboratory to further their understanding of the environment.
6. demonstrate how tools of science, technology, or formal analysis can be used to analyze problems and develop solutions.
7. learn how to read and interpret the tables, graphs and indices used to evaluate and measure selected physical, chemical and geological properties that influence the structure and function of ecological systems.
8. develop further their ability to gather, interpret, and assess information from a variety of sources and points of view, to think critically about and evaluate the impact of technology and science and to communicate their well-reasoned thoughts both in oral and write form.

Topical Outline Lecture: (Approximate and subject to change upon notification)

Week	Topics
1	Foundations of Environmental Science & The Scientific Method
2	The Biosphere
3	Energy Relationships
4	Ecological Relationships
5&6	Environmental Problems: Global Warming, Acid Rain and Ocean Acidification, Toxic Chemicals, Sewage Pollution, Oil Pollution, Turbidity, Land Degradation, Litter Pollution & Commercial Exploitation
7&8	Natural Resource Management and Conservation: Fisheries, Fossil Fuels, Agriculture, Aquaculture, Stewardship
9 &10	Endangered Species & Ecotourism
11	Alternative Energy Sources Wind Power, Tidal Power, Hydroelectric Power, Solar Power, Hydrogen Fuel Cells, Biomass Conversion, Nuclear Energy, Geothermal Energy
12	Student Oral Presentations
13	Final Exam - As per official College Final Schedule

Evaluation:

- 3 Exams – 20% each

Exams are definition, problems, short answer, and essay. Once side of a 3x5 index card filled with notes may be created and used for an exam.

- Term Paper and Group Oral Presentation - 20%

Students will choose a topic to research. A specific detailed format for this assignment will be provided. In brief: you will share your work with the class in a 10 minute presentation and submit a 5 page, 12pt Times New Roman Font, 1 inch margins, plus a bibliography. First Draft due DATE , Final Draft due DATE, and the Final Paper will be due DATE along with your presentation.

- Laboratory - 20%

You are responsible for being in laboratory on time. Laboratory assignment cannot be made up. Laboratory reports, unless otherwise specified, must be turned in at the end of class. As part of your laboratory final, you may bring all laboratory reports to class to assist you on your final.

Grades will be awarded as follows: 93% or above=**A**; 90-92.99%=**A-**; 87-89.99%=**B+**; 83-86.99%=**B**; 80-82.99%=**B-**; 77-79.9%=**C+**; 73-76.99%=**C**; 70-72.99%=**C-**; 67-69.99%=**D+**; 63-66.99%=**D**; 60-62.99%=**D-**; <60%=**F**

Missed Exam/Laboratory/Lecture/Assignment Policy

Attending all classes is mandatory. The textbook is a guide for the course additional material will be covered during lecture meetings. If you miss class, you will miss out on taking notes and this ***will*** affect your ability to study for tests and quizzes. If you miss an opportunity to demonstrate your knowledge of the subject matter by missing a duly scheduled exam, laboratory or other assignment, the grading scheme does not apply. Your grade will be determined at the discretion of the instructor. By missing a duly scheduled exam, laboratory or other assignment, you accept and recognize that the instructor must determine your grade within the context of determining the grade of students who did not miss a duly scheduled exam, laboratory or other assignment. Instructor Make-up Policy: SUGGESTED: NO MAKE-UP EXAMS, NO MAKE-UP LABORATORIES OR NO MAKE-UP OTHER ASSIGNMENTS. FINAL EXAM WEIGHTED WITH PENALTY (0-100%) FOR MISSED WORK

Conduct: Students are required to follow *The Student Code of Conduct* as stated in the *Student Handbook*.

Accessibility: Access-Ability Services (AAS) serves as a liaison and resource to the KCC community regarding disability issues, promotes equal access to all KCC programs and activities, and makes every reasonable effort to provide appropriate accommodations and assistance to students with disabilities. You must contact Access-Ability Services if you require such accommodations and assistance. Your instructor will make the accommodations you need, but you must have documentation from the Access-Ability office for any accommodations.

Laboratory

Meeting	Topic	Requirements
1	Measuring Ocean Water Density/Temperature	Hand in
2	Making Ocean Water	Hand in
3	Determining pH of Ocean Water	Hand in
4	Measuring DO in Ocean Water	Hand in
5	Measuring Nitrogen Compounds	Hand in
6	Analyzing DO in the Water Column	Hand in
7	Measuring Sewage Pollution	Hand in
8	Counting and Observing Plankton Data	Hand in
9	Graphing Biodiversity in Marine Biota	Hand in
10	Locating and Graphing Marine Sanctuaries	Hand in
11	Graphing Fishery Data	Hand in
12	Monitoring Water Quality in Sheepshead Bay	Hand in

Laboratory Manual: All labs are posted on the physical science department webpage. Labs need to be downloaded and read before coming to lab. You will not be permitted in the laboratory if you do not have a copy of the experiment.

Note on laboratory component: The laboratory component counts for 20% of your overall result. Failure to pass the laboratory component of the course will result in a grade of F in the course. It is important to note that the laboratory component of the course serves a dual purpose. It offers the opportunity for students to deepen their understanding of a specific experimental science. The laboratory also offers the instructor an opportunity to assess each student's competence in the subject area. The laboratory grade is based on the quality of your work in the laboratory and the quality of your laboratory assignments. Laboratory instructors may assess your competence in the subject through the use of pre-lab assignments, reports, quizzes or practical examinations. All laboratory meetings are mandatory. Performing an experiment at an alternate time will be considered only under exceptional cases. If you miss more than one laboratory meeting you may fail the laboratory portion of the course and, hence, the entire course. All laboratory assignments must be completed and handed in within the time limits set by your laboratory instructor. Laboratory meetings are subject to the regulations of the New York City Fire Department and the laws of the State of New York. If your instructor is concerned that you are unprepared or unable to safely complete a given experiment you may be asked to leave the laboratory and will not receive credit for the meeting. Examples of reasons for an instructor's duty of action include a student arriving late to the meeting, improper attire, failure to study the laboratory experimental protocol, or a general lack of laboratory competence.