Kingsborough Community College
The City University of New York
Department of Physical Sciences
SCI 3700 – DEVELOPMENTS IN THE PHYSICAL SCIENCES (WITH LABORATORY)
Syllabus

SCI 3700 – DEVELOPMENTS IN THE PHYSICAL SCIENCES (WITH LABORATORY) (3 crs. 5 hrs.)
Basic concepts in the physical sciences and their applications in today's technologically advanced world are presented. The impact that modern technology has on our physical environment is examined. Selected topics include: pollution, ozone layer depletion, global climate change, pesticides and chemicals in food, energy sources (renewable and non-renewable), and medical and military applications of technology. Students will engage in science through application of the methods of science (e.g. empirical, experimental and the scientific method). Students will develop the ability to formulate strong, logical, science-based arguments, evaluate and discuss environmental issues, and test hypothesis to improve problem solving skills. Required Core: Life and Physical Sciences Flexible Core: Scientific World (Group E)

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: The textbook is *Chemistry in Context*: *Applying Chemistry to Society* 8th Edition
Authors: Lucy Pryde Eubanks, Catherine H. Middlecamp, Carl E. Heltzel, Steven W. Keller.
ISBN 978-0-07-337566-3. 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 physical sciences and their applications in today's technologically advanced world.
2. learn the chemical structure and physical properties of their environment.
3. be able relate the chemical structure and physical properties of their environment.
4. understand how the chemical structure and physical properties of their environment as it relates pollution, ozone layer depletion, global climate change, pesticides and chemicals in food, energy sources (renewable and non-renewable), and medical and military applications of technology.
5. apply the basic techniques of the physical and chemical sciences in laboratory to further their understanding of their 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 pollution, ozone layer depletion, global climate change, pesticides and chemicals in food, energy sources both renewable and nonrenewable.
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	Book Chapter(s)
1	Chemistry for a Sustainable Future	0
2	The Air We Breathe	1
3	Protecting the Ozone Layer	2
4	The Chemistry of Global Climate Change	3
5	Energy from Combustion	4
6	Water for Life	5
8	Neutralizing the Threats of Acid Rain and Ocean Acidification	6
8	The Fires of Nuclear Fission	7

9	Energy from Electron Transfer	8
10	The World of Polymers and Plastics	9
11	Manipulating Molecules and Designing Drugs	10
12	Nutrition: Food for Thought	11
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	Density	Hand in
2	Seawater	Hand in
3	Inorganic Substances	Hand in
4	Properties of Oxygen	Hand in
5	Types of Reactions	Hand in
6	Titration of a Commercial Antacid	Hand in
7	Graphing handout	Hand in
8	Radioactivity	Hand in
9	Organic Chemistry	Hand in
10	Laboratory: Group Oral Presentations	Presentation
11	Laboratory: Group Oral Presentations	Presentation
12	Laboratory: Laboratory Exam	Exam

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.