

Kingsborough Community College  
The City University of New York  
Department of Physical Sciences  
**SCI7000 - The Science of Nutrition**  
Syllabus

**Course Description:**

Learn and measure the physical and chemical properties that influence the structure and function of chemical properties that influence the structure and function of nutritional systems. Gain experience with practical applications of nutritional science. Practice the gathering, analysis, interpretation, and presentation of scientific data. Learn standard techniques used to observe, sample and describe natural systems.

**Pre/Co-requisites:** Passing scores on the CUNY Reading and Writing exams.

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

**Text:** Wardlaw's *Perspectives in Nutrition* by Byrd-Bredbenner, Moe, Beshgetoor, and Bering

**Course Learning Outcomes:**

1. Student will understand the basic principles of physics and chemistry as they apply to nutrition.
2. Student will learn the chemical structure and physical properties of food constituents.
3. Student will be able relate the chemical structure and physical properties of food to the function of the food constituents
4. Student will understand how the chemical structure and physical properties of food relate to food quality, nutrition, safety, and processing.
5. Students will apply the basic techniques of the physical and chemical sciences in laboratory to further their understanding of food systems.
6. Demonstrate how tools of science, technology, or formal analysis can be used to analyze problems and develop solutions.
7. Student will learn how to read and interpret the tables, graphs and indices used to evaluate and measure food quality and food planning.
8. Student will 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:** (Approximate and subject to change upon notification)

Week 1	The Science of Nutrition Laboratory: Metric System
Week 2	Tools, Graphs, Tables, Indices of Food Science Laboratory: Aromatic Chemistry
Week 3	Chemical and Physical Properties of Carbohydrates, Sugars, Starches, and Fiber Laboratory: Mass Density (Body Mass Index) and Energy Balance (Calorie Intake)
Week 4	Chemical and Physical Properties of Fats, Oils, and Other Lipids Laboratory: Conservation of Energy
Week 5	Chemical and Physical Properties of Proteins Laboratory: Chemical Analysis of Simple Carbohydrates
Week 6	Energy Balance and Mass Flow Control Laboratory: Detection of Fat
Week 7	Chemical and Physical Properties Water Soluble Vitamins

(Thiamin, Riboflavin, Niacin, Pantothenic Acid, Biotin, Vitamin B12, Folate)  
Laboratory: Detection of Alcohol

Week 8 Chemical and Physical Properties Fat Soluble Vitamins  
(Vitamin A, Vitamin D, Vitamin E, Vitamin K)  
Laboratory: Presentation Group 1

Week 9 Chemical and Physical Properties of Major Minerals (Continued)  
(Sodium, Chloride, Potassium, Calcium, Phosphorous, Magnesium, Sulfate)  
Laboratory: Presentation Group 2

Week 10 Chemical and Physical Properties of Major Minerals (Continued)  
(Sodium, Chloride, Potassium, Calcium, Phosphorous, Magnesium, Sulfate)  
Laboratory: Presentation Group 3

Week 11 Lecture: Chemical and Physical Properties of Trace Minerals  
(Iron, Copper, Zinc, Selenium, Fluoride, Chromium, Iodine, Molybdenum,  
Manganese, Arsenic, Boron, Nickel, Silicon, and Vanadium)  
Laboratory: Presentation Group 4

Week 12 Lecture: Chemical and Physical Properties of Alcohol  
Laboratory: Laboratory Exam

Final Exam – As per official College Final Schedule  
*This is an approximate schedule*

### **Grading Evaluation:**

- 3 Exams – 15% each

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

- Term Paper and Presentation – 25%

Students will choose a food to analyze. Any food may be chosen from a cashew to a Twinkie. The student will use the nutritional label to begin their research. Nutritional labels are located on packages of many foods or may be found online. You will take this information and build upon it with your knowledge gained from class as well as additional research. This information will be shared with the class in a 5 minute presentation. 5 pages, 12pt Times New Roman Font, 1 inch margins, plus a bibliography.

- Energy Balance and Mass Control Log – 10%

This will consist of two parts: data collection and analysis. For data collection, students are expected to keep track of their daily food intakes throughout the semester and inputted into a program such as My Pyramid or My Fitness Pal online. You are responsible for doing this 5 out of every 7 days in a week. The second part will be a weekly analysis of your diet using structured questions the instructor will give you. Both parts will be turned in on exam days.

- Laboratory – 20 %

The student is 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.

- In class writings – 10% (if you are not here for these they cannot be made up)

The instructor will bring a current nutrition article into class periodically. The student will write about the article critically and it will be discussed in class.

**Conduct and Attendance:** Students are required to follow *The Student Code of Conduct* as stated in the *Student Handbook*. Attendance is required. You are responsible for the material presented in class on days you are absent.

**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. Your instructor will make the accommodations you need once you provide documentation from the Access-Ability office (D205). Please contact AAS for assistance.