

**College of Staten Island Course : CHM 116
Section 1749**

INTRODUCTION TO COURSE AND INSTRUCTOR

Semester Summer 2022	Program/Department Chemistry
Course Name CHM 116	Instructor Name Rema Balambika
Credits and Hours 3 credits	Office Location 6S 332
Mode of Instruction In person	
Time M-Th 1 PM-3:40 PM	E-Mail rema.balambika@csi.cuny.edu
Location 5S 217	Telephone 718 982 4091
Website: See instructions below on how to use Blackboard collaborate	Faculty Office Thursday 4-5 PM online on blackboard collaborate course room or in person by appointment
<i>If there are questions or concerns that you have about this course that you and I are not able to resolve, please feel free to contact the Chair of the department to discuss the matter.</i>	
CHAIR/PROGRAM DIRECTOR'S NAME	Qiao Sheng Hu
DEPARTMENT NAME	Chemistry
CHAIR/PROGRAM DIRECTOR'S EMAIL	QiaoSheng.Hu@csi.cuny.edu
DEPARTMENT/PROGRAM PHONE NUMBER	718 982 3900

COURSE DESCRIPTION AND PRE/COREQUISITES

3 hours. Chemistry and biochemistry of carbon compounds. A study of the nomenclature, structure, properties, and reactions of organic and biochemical compounds. A number of special topics are discussed, some of which are the petroleum industry, giant molecules (synthetic and biopolymers), environmental chemistry and drugs.

Prerequisite

CHM 110 and CHM 111

Corequisite

CHM 117

REQUIRED COURSE MATERIALS (REQUIRED)

TEXT BOOKS:

We will use Chapters 11-21 from "General, Organic, and Biochemistry, Second Edition-Media Update Edition" by I. Blei and G. Odian, W. H. Freeman, NY, 2009.

<https://csi.textbookx.com/institutional/index.php>

Learning Objectives/course goals.

Students will learn and UNDERSTAND:

1. The chemical structures (3-dimensional), nomenclature, physical properties, chemical reactions, and scope of organic chemistry.
2. How chemical structure determines the physical properties (melting point, solubility, physical strength) of compounds.
3. How chemical structure determines the chemical reactions that organic compounds undergo.
4. The extension of organic chemistry to carbohydrates, lipids, proteins, nucleic acids.
5. The reactions of carbohydrates, lipids, proteins, and nucleic acids, with emphasis on understanding that these reactions are simple extensions of organic reactions.
6. The relationship between chemical structure, physical structure, and physiological functions of carbohydrates, lipids, proteins, and nucleic acids.

Note:

This course is a 3-credit General Education course with the requirement designation:

“Flexible Core – Scientific World”. Details of the General Education learning objectives for CHM 116/117 are described in http://www.chem.csi.cuny.edu/GenEd-LO_CHM116-117.pdf.

SYLLABUS: CHM 110 TOPICS

SOME TOPICS FROM CHM 110 ARE CRITICAL FOR UNDERSTANDING CHM 116. Review the following topics as needed:

1. Difference between ionic and covalent bonds.
2. Electronegativity, polar molecules.
3. Combining power of atoms in covalent bonds.
4. Molecular vs. structural formulas.
5. Bond angles and VSEPR theory.
6. Secondary (intermolecular) forces and physical properties.

You can find these topics at many websites or general chemistry texts.

ORGANIC CHEMISTRY

1. Chap. 11 - Introduction to Organic Chemistry; Saturated Hydrocarbons

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1-3, 5, 7, 9, 11-17, 19, 21-26, 29, 31, 33-35, 37, 39, 41, 43, 45, 47, 49,

51, 53, 56, 57, 59, 60, 61, 68, 71, 75.

You do not need to memorize Table 11.2 at this time. You will learn the different families of organic compounds as we study each family. However, you need now to use Table 2 to do questions like Problem 11.2.

2. Chap. 12 - Unsaturated Hydrocarbons

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1, 3, 5, 7-9, 11, 13-17, 19, 21, 23, 25, 27, 29, 31-35, 37, 39, 41, 43, 45,

47, 49, 51, 53, 55, 57, 61, 63, 65, 67, 71, 73, 75, 78, 81.

3. Chap. 13 - Alcohols, Phenols, Ethers, Sulfur Analogues

Read all sections and boxes except omit section 13.10.

Do all Examples and Problems except 16.

Do Exercises 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 33, 34, 37, 39-41, 43-45, 47, 49, 51, 53, 55-57, 59, 61, 63, 64, 66, 69, 74.

4. Chap. 14 - Aldehydes, Ketones

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1, 3, 5-9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31-33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 56, 59-62, 65, 67.

5. Chap. 15 - Acids, Esters, Other Acid Derivatives

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1-3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 52, 53, 55, 57, 59, 61, 63, 65, 68-70, 77, 80, 82, 86-88.

6. Chap. 16 - Amines, Amides

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27-29, 31, 33, 35, 37, 39, 41, 43, 45, 46, 49, 51, 53, 55, 57, 59, 60, 63, 65, 68, 69, 70-76, 80.

7. Chap. 17- Stereoisomerism

Read all sections and boxes except box 17.1.

Do all Examples and Problems.

Do Exercises 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37-39, 41, 43, 46, 48, 52.

BIOCHEMISTRY

8. Chap. 18 - Carbohydrates

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39-43, 45-61, 63, 65, 67, 69, 71, 73-76, 82, 86, 88, 91.

9. Chap. 19 - Lipids

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1, 3, 5, 7, 9, 11, 13, 15, 17, 19-21, 23, 25, 27, 29-31, 33, 35, 37, 39-41, 43, 45-48, 51-61, 63-81, 83, 85, 88, 89, 91-93, 95, 97-101, 104.

10. Chap. 20 - Proteins

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1, 3, 5-7, 9, 11, 13, 15, 17-19, 21, 23, 25, 27-33, 35-39, 41, 42, 45-47, 49, 51, 53, 55, 57, 59-64, 66-71, 73-77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101,

108-111,115.

11. Chap. 21 - Nucleic Acids (DNA, RNA)

Read all sections and boxes.

Do all Examples and Problems.

Do Exercises 1, 3, 5, 7-11, 13, 15, 17-35, 37-41, 43, 46-59, 61-71, 73, 75-83, 85-88, 90-103, 105, 107-110.

Course Meetings: The classes will meet in person.

NOTES

The slides used in the class will be posted on the blackboard contents section. It is a good idea to bring a print or electronic copy to class.

COURSE REQUIREMENTS/ASSIGNMENTS

Attendance:

* It is your responsibility to attend the class on time. **If you are absent from class, it is your responsibility to check on announcements made while you were away.**

EXAMINATIONS

There will be 3 exams. Please note that MAKE-UP EXAMS WILL NOT BE GIVEN.

The tentative dates for the exams are July 7th, 14th and 25th.

Practice tests are due at 11:00 AM on the day before the exam (July 6th, 13 and 21st)

The following exam rules apply in CHM 116 and CHM 117.

- 1) A student will not be allowed to take an exam if the student is late for 30 minutes or more. The student will receive a zero on the exam.
- 2) **No make-up exams** will be arranged.

Grading Policy and Evaluation

Most of grade (**87 %**) will be the average of exams. No exam is dropped unless there is documented emergency (just a routine medical exam will not count as medical emergency).

Homework carries no points, but will help you with the test. Homework is highly recommended but not mandatory.

Practice tests will be posted before the exams.

You must solve the practice tests yourselves and upload them before class time on the day before the exam.

We will discuss the practice tests in class on the day before the exam. Practice tests will count **9%** towards the class grade, late submissions will not be counted.

Class participation and attendance: **4%**

Grading :

A: 90-100, A- : 86-89.5, B+: 81-85.5, B: 76-80.5, B-: 71-75.5, C+ 63-70.5, C 57-62.5,

D 55-57, F below 55

The grading above is subject to change.

COURSE CALENDAR/SCHEDULE

Exam 1 will include chapters 11-13 and will be on July 7th.

Exam 2 will include chapters 14-16 and will be on July 14th

Exam 3 will include chapters 17-20 and will be on July 25th

This schedule and number of chapters in the exam is subject to change.

Attitude:

Disruptive behavior is unacceptable during the class, and will NOT be tolerated. Late arrival, noisy devices, inconsiderate behavior, and talking during lectures, will not be tolerated. Discussion of scientific issues is highly welcome to advance our knowledge, but emotional arguments and quarrels are prohibited.

Academic Honesty:

All students are expected to follow the CUNY policies related to academic integrity. You shouldn't copy any other person's work including any online resources as your own. Students must work independently on all quizzes and exams. Any forms of cheating or plagiarism in tests will result in a zero point for the test and may result an F grade of the course. Also, any academic dishonesty will be reported to the college authorities.

Last day to drop the course

According to CSI's summer 2022 Academic Calendar, the last day to withdraw with a W grade is July 24th 2022.

REASONABLE ACCOMODATIONS AND ACADEMIC ADJUSTMENTS

The City University of New York, in compliance with Section 504 of the Federal Rehabilitation Act of 1973 ("Rehabilitation Act"), the Americans with Disabilities Act of 1990 ("ADA"), New York State Executive Law §296, and New York City Human Rights Law, provides qualified individuals with disabilities the opportunity to participate in programs, activities, or employment. For more information and access to the full policy please visit: <https://www.csi.cuny.edu/about-csi/diversity-csi/office-diversity-compliance/reasonable-accommodations-and-academic-adjustments>

STUDENTS WITH DISABILITIES

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring an accommodation, please contact the Center for Student Accessibility at 718.982.2510/ CSA@csi.cuny.edu. For more information please visit: www.csi.cuny.edu/csa/.

TUTORING AND ACADEMIC ASSISTANCE

The College offers tutoring to students, free of charge. For a complete list of the Tutoring Centers please visit <https://www.csi.cuny.edu/students/academic-assistance/tutoring>

Recording of Lecture:

The in person classes may also be recorded when possible to do so. Students who participate in online office hours or classes with their camera on or use a profile image are agreeing to have their video or image recorded solely for the purpose of creating a record for students enrolled in the class to refer to, including those enrolled students who are unable to attend live. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live.

Instructor

Rema Balambika, PhD

Email: rema.balambika@csi.cuny.edu Tel 718 982 4091

Room 6S-332. Office hours: Thursday after class or by appointment.

Subject to change statement:

The syllabus, course calendar, exam dates and grading policy are subject to change if deemed necessary by the instructor.