

**NATURAL SCIENCES DEPARTMENT
HOSTOS COMMUNITY COLLEGE
Physical Sciences Unit**

CHE 105 Introduction to General Chemistry
4.5 Credits/3 Hours Lecture/2 Hours Lab/1 Hour Recitation
Prerequisite : MAT 105 (Mathematics for Allied Health)

Course Description:

The student will solve problems and analyze data which require knowledge of the **General Chemistry and Inorganic Chemistry which include principles of Scientific Measurements, Atomic Theory, Chemical Bonding, Nuclear Chemistry, Gas Laws, Solutions and concept of Acids & Bases. The student will also recognize the introductory knowledge of different classes of Organic Compounds.** This course is for Dental Hygiene students and a requirement for entry into the Nursing Program. Offered in English only.

Course Objectives:

- Students will develop the capabilities to solve problems by combining several concepts in chemistry.
- Students will develop the techniques to think critically about a problem, devise a strategy for solving it, and assess whether the results make sense.
- Students will be able to relate chemistry to all areas of science.
- Students will be able to unify the diverse topics of chemistry.
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Required textbooks:

1. Timberlake, K. C., Chemistry, An Introduction to General, Organic and Biological Chemistry, 9th Ed, Benjamin Cummings, 2006
2. Timberlake, K.C., Laboratory Manual, An Introduction to General, Organic, and Biological Chemistry, 9th Ed, Benjamin Cummings, 2006

A. LECTURE

<u>WEEK</u>	<u>CHAPTER</u>	<u>SECTION</u>	<u>QUESTIONS & PROBLEMS</u> <u>(ODD NUMBERS)</u>
1	1. Measurements	1.1-1.4	1.3, 1.4 -1.35, 1.5-1.7, 1.36-1.42, 1.45-1.56, 1.66
2	2. Energy and Matter	2.1-2.6	2.3-2.7(b,d), 2.9-2.17, 2.19(a,c), 2.21(a,c), 2.23, 2.29(a,c), 2.33, 2.35
3	3. Atomic Structure (Atoms & Elements)	3.1-3.8	3.1-3.25, 3.29-3.35, 3.39(a,c), 3.41(b,d), 3.45-3.49, 3.53(b,c),

3.55, 3.59(c,d), 3.65,3.71, 3.71

EXAM I - CHAPTERS 1, 2 AND 3

4	4. Compounds and Their Bonds	4.1-4.4	4.3-4.7, 4.11, 4.25-4.29, 4.35,
5	4. Compounds and Their Bonds	4.5-4.7	4.39, 4.43, 4.47, 4.49, 4.55, 4.65, 4.67
6	9. Nuclear Reactions	9.1-9.9	9.1-9.9, 9.13, 9.17, 9.19, 9.27, 9.31, 9.35, 9.41, 9.49, 9.55
7	5. Chemical Reactions and Quantities	5.1-5.5	5.1-5.27
8	5. Chemical Reactions and Quantities	5.6-5.9	5.29-5.41, 5.47(a,c) 5.53(a,b), 5.55(a), 5.57(a,c) 5.63),)

EXAM II - CHAPTERS 4, 5 and 9

9	6. Gases	7.1-7.5	6.3-6.7, 6.15-6.19, 6.27-6.33
10	6. Gases	7. 6-7.8	6.35-6.53, 6.57-6.65
11	7. Solutions	7.1-7.4	7.1, 7.7-7.19, 7.25, 7.31-7.35, 7.39(a), 7.41
12	7. Solutions	7.5-7.7	7.43-7.47, 7.53(a,c), 7.57, 7.59

EXAM III - CHAPTERS 6 AND 7

13	8. Acids and Bases	8.1-8.7	8.1-8.11, 8.15, 8.19,8.23, 8.25(a,d), 6.27, 8.33, 8.37, 8.39, 8.45, 8.47, 8.57, 8.63
14	10. Introduction to Organic Chemistry	10.1-10.5	10.1-10.5, 10.11, 10.21, 10.25, 10.29, 10.33

FINAL EXAMINATION

Cumulative Exam (sections covered from Chapters 1 to 12). Date and time will be announced prior to the final examination week.

B. Laboratory

WEEK	TITLE	EXPT.#	PAGE
1	Drawer assignment Discussion of Safety Rules for Laboratory Sessions Attendance and Grading Policies		
	Conversion Factors in Calculations Procedure A - C	2	11
2	Measurement: Length and Volume Procedure A & B	1	1
3	Measurement: Mass Procedure C	1	6
4	Density and Specific Gravity (Omit Part D)	3	25
5	<u>QUIZ #1</u> Graphing Mass and Volume	3D	26
6	Electron Configuration and Periodic Properties	5	41
	Atomic Structure (Assign as homework if time runs out)	4	33
7	Chemical Reactions and Equations	10	97
WEEK	TITLE	EXPT.#	PAGE
8	<u>QUIZ #2</u>		
	Partial Pressures of Oxygen and Nitrogen (A.1 only)	14	139
	Compounds and Their Formulas (Assign as homework if time runs out)	7	59
9	Partial Pressures of Oxygen and Nitrogen (A.2 to A.6)	14	140
	Solutions, Electrolytes and Concentration	15	147

(**B** - Demonstrated by Instructor)

10	Solutions, Colloids and Suspensions NOTE: Set up “Figure 18.1” before starting Procedure A	18	177
11	Acids, Bases, pH and Buffers	19	185
12	<u>QUIZ #3</u>		
	Acid-Base Titration Procedure A (B may be done by the Instructor)	20	193
13	Structures of Alkanes (Request the Handbook of Chemistry & Physics)	22	211
14	<u>QUIZ #4</u>		
	Reactions of Hydrocarbons (Bromine Test by Instructor)	23	223

CLEAN UP AND CHECK OUT

GRADING POLICY

The laboratory grade will contribute 25% towards the final grade. Laboratory attendance is compulsory. Laboratory sessions will begin at the scheduled hour. There will be no make ups.

EYE PROTECTION

NO ONE will be allowed in the laboratory without safety glasses. Glasses MUST BE WORN AT ALL TIMES while working in the lab.

Graded assignments: The Final grade will be determined by the grades on lecture and lab combined as follows:

Lecture	75%
3 Partial Exams	45%
Final Exam	20%
Reports	10%
Laboratory	25%
8-10 Lab Reports + Quizzes	20%
(Points will be taken off for <i>each report that is handed in late.</i>)	
Participation	5%

Total Grade Course

100%

No student under any circumstances will be given a passing grade in this Chemistry course without taking and passing the laboratory.

Policy Grade:

The college uses the following grades:

A, A⁻ for excellent work

B⁺, B, for good work

B⁻, C, for fair work

D, for poor work

F, for failure

I, for incomplete

WU, for unfinished incomplete, equivalent to F

W, for withdrawn

The grade of Incomplete (I) is given in regular courses upon request of the student for personal emergencies that are verifiable. The faculty member has the responsibility to provide Inc grade only to those students **who are passing the course**. The student has the responsibility to take the initiative in completing the work, and is expected to make up the incomplete during the first semester in residence after receiving the grade of Incomplete. If the student does not make up the incomplete during the following semester after receiving it, **an F grade may be given by the faculty member without further consultation with the student.**

If after the end of the first semester the Inc remains on the record it will be designated as an F and will be computed in the student's GPA.

A	93-100
A ⁻	90-92
B ⁺	87-89
B	83-86
B ⁻	80-82
C ⁺	77-79
C	70-76
D	60-69
F	Failure

There is no R grade in this course.

Lecture and Lab Participation:

Your participation in class is an important part of the final grade. This grade is based primarily on your participation in class discussions, in team projects and your attendance. For each class you miss, you will lose participation points. If you miss 25% or more of the term, you will be failed.

Academic policies:

Hostos Community College has an evaluation system based on the honesty and integrity of the academic work of an identified student or students. Faculty, students and staff have the responsibility to uphold the standards of the community and to take action when others violate them. Faculty members have an obligation to educate students to the standards of academic integrity, and to report violations of these standards to the appropriate authorities of the college. If a community member is proved with academic dishonesty, the college will impose sanctions. The three most common forms of academic dishonesty are cheating, plagiarism, and bribery. It must be understood that any student who knowingly aids in plagiarism or other cheating, e.g., allowing another student to copy a paper or examination question, is as guilty as the cheating student.

Cheating:

In the collegiate setting, cheating is defined as the purposeful misrepresentation of another's work as one's own. Faculty and students alike are responsible for upholding the integrity of this institution by not participating either directly or indirectly in an act of cheating and by discouraging others from doing so.

Plagiarism:

Plagiarism is a form of cheating which occurs when persons, even if unintentionally, fail to acknowledge appropriately the sources for the ideas, language, concepts, inventions, etc. referred to in their own work. Thus, any attempt to claim another's intellectual or artistic work as one's own constitutes an act of plagiarism.

Bribery:

In the collegiate setting, bribery involves the offering, promising, or giving of items of value, such as money or gifts, to a person in a position of authority, such as a teacher, administrator, or staff member, so as to influence his/her judgment or conduct in favor of the student. The offering of sexual favors in exchange for a grade, test score, or other academic favor, shall be considered attempted bribery. The matter of sexual favors, either requested or offered, in exchange for a grade, test score or other academic favor shall also be handled as per the Sexual Harassment procedures of the College.

Use of **Cellular Phone** is not allowed both in the classroom and in the hallway.