HOSTOS COMMUNITY COLLEGE
Natural Sciences Department
Physical Sciences Unit
Course Title: Introduction to Chemistry

CHE 110/4012     Code:                Session:                                   Sec:
Meets:              Lecture:                                                                     Room:
Instructor:
Email:
Office Hours:
Room:
Phone: 718-518-

Course Description:
The student will solve problems and analyze data, which require knowledge of the principles of atomic theory, chemical bonding, the gas laws, solutions and 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 an understanding of the basic concepts and diverse topics of Chemistry and their application to real problems.
- Students will utilize chemical concepts to solve simple and complex engineering problems to every day life situation.
- Students will develop the techniques to think critically about a problem, devise a strategy for solving it, and assess whether the results make sense.

Required textbooks:


SUPPLIES: (Goggles needed for laboratory sessions)

Additional Readings __________________________
Pre/Co-requisites:

Prerequisite : MAT 1604 or satisfactory performance on math skills test.
Corequisite : MAT 1622 or satisfactory performance on math skills test.

A. LECTURE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>CHAPTER</th>
<th>SECTION</th>
<th>QUESTIONS &amp; PROBLEMS (ODD NUMBERS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1. Measurements</td>
<td>1.1-1.4</td>
<td>1.3, 1.4-1.35</td>
</tr>
<tr>
<td></td>
<td>1. Measurements</td>
<td>1.5-1.7</td>
<td>1.36-1.42, 1.45-1.56, 1.66</td>
</tr>
<tr>
<td>2</td>
<td>2. Energy and Matter</td>
<td>2.1-2.6</td>
<td>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</td>
</tr>
</tbody>
</table>

EXAM I - CHAPTERS 1, 2 AND 3

<table>
<thead>
<tr>
<th>WEEK</th>
<th>CHAPTER</th>
<th>SECTION</th>
<th>QUESTIONS &amp; PROBLEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4. Compounds and Their Bonds</td>
<td>4.1-4.4</td>
<td>4.3-4.7, 4.11, 4.25-4.29, 4.35,</td>
</tr>
<tr>
<td>5</td>
<td>4. Compounds and Their Bonds</td>
<td>4.5-4.7</td>
<td>4.39, 4.43, 4.47, 4.49, 4.55, 4.65, 4.67</td>
</tr>
<tr>
<td>6</td>
<td>5. Chemical Reactions and Quantities</td>
<td>5.1-5.5</td>
<td>5.1-5.27</td>
</tr>
<tr>
<td>7</td>
<td>5. Chemical Reactions and Quantities</td>
<td>5.6-5.9</td>
<td>5.29-5.41, 5.47(a,c) 5.53(a,b), 5.55(a), 5.57(a,c), 5.63,</td>
</tr>
</tbody>
</table>

EXAM II - CHAPTERS 4 AND 5

<table>
<thead>
<tr>
<th>WEEK</th>
<th>CHAPTER</th>
<th>SECTION</th>
<th>QUESTIONS &amp; PROBLEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>6. Gases</td>
<td>7.1-7.5</td>
<td>6.3-6.7, 6.15-6.19, 6.27-6.33</td>
</tr>
<tr>
<td>9</td>
<td>6. Gases</td>
<td>7.6-7.8</td>
<td>6.35-6.53, 6.57-6.65</td>
</tr>
<tr>
<td>10</td>
<td>7. Solutions</td>
<td>7.1-7.4</td>
<td>7.1, 7.7-7.19, 7.25, 7.31-7.35, 7.39(a), 7.41</td>
</tr>
</tbody>
</table>
11  7. Solutions  
7.5-7.7  
7.43-7.47, 7.53(a,c), 7.57, 7.59

EXAM III - CHAPTERS 6 AND 7

12  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

13  9. Nuclear Reactions  
9.1-9.9  

14  10. Organic Chemistry:  
Alkanes  
10.1-10.5  
10.1-10.5, 10.11, 10.21, 10.25, 10.29, 10.33

15  11. Unsaturated Hydrocarbons  
11.1-11.5  
11.1-11.3, 11.7, 11.11, 11.5, 11.23

EXAM IV - CHAPTERS 8 AND 9

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

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TITLE</th>
<th>EXPT.#</th>
<th>PAGE</th>
</tr>
</thead>
</table>
| 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    | QUIZ #1  
Graphing Mass and Volume | 3D | 26 |
6 Electron Configuration and Periodic Properties 5 41

Atomic Structure 4 33
( Assign as homework if time runs out )

7 Chemical Reactions and Equations 10 97

8 QUIZ #2

Partial Pressures of Oxygen and Nitrogen 14 139
( A.1 only )

Compounds and Their Formulas 7 59
( Assign as homework if time runs out )

WEEK TITLE EXPT.# PAGE

9 Partial Pressures of Oxygen and Nitrogen 14 140
(A.2 to A.6)

Solutions, Electrolytes and Concentration 15 147
( B - Demonstrated by Instructor )

10 Solutions, Colloids and Suspensions 18 177
NOTE: Set up “Figure 18.1” before starting Procedure A

11 Acids, Bases, pH and Buffers 19 185

12 QUIZ #3

Acid-Base Titration 20 193
Procedure A (B may be done by the Instructor)

13 Structures of Alkanes 22 211
(Request the Handbook of Chemistry & Physics)

14 QUIZ #4

Reactions of Hydrocarbons 23 223
(Bromine Test by Instructor)

CLEAN UP AND CHECK OUT
GRADING POLICY

There will be four (4) laboratory quizzes during the term. The laboratory grade will contribute 20% 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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>80%</td>
</tr>
<tr>
<td>4 Partial Exams</td>
<td>50%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>20%</td>
</tr>
<tr>
<td>8-10 Lab Reports + Participations</td>
<td>12%</td>
</tr>
<tr>
<td>(Points will be taken off for each report that is handed in late.)</td>
<td></td>
</tr>
<tr>
<td>4 Quizzes</td>
<td>8%</td>
</tr>
<tr>
<td>Total Grade Course</td>
<td>100%</td>
</tr>
</tbody>
</table>

No student under any circumstances will be given a passing grade in this Chemistry course without taking and passing the laboratory. Four (4) unexcused absences to lab are equivalent to an F.

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
W, for withdrawn
WU, for unfinished incomplete, equivalent to F

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 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 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.