Office of Academic Affairs  
Tarleton State University  
July, 2002  

Master Course Syllabus Outline

Department: **CHEMISTRY & GEOSCIENCES**  Course Prefix/Number: **CHEM 1054**

Official Course Title: **COLLEGE CHEMISTRY I**

Master Syllabus Approved by Department on: **11__/ _01__/ __02_**

I. Catalog Description (50 words; brief synopsis of course content, emphases)

Topics to be covered include an introduction to fundamental chemical laws, atomic structure and its relationship to chemical bonding and the periodic properties of elements and compounds, stoichiometry, states of matter, and solutions. Suggested for science majors and pre-professional students who meet requirements for enrollment in MATH 1073 or higher. Lab fee $10. Course fee $5.

II. Prerequisites?

None. However, it is recommended that the student should have successfully completed MATH 1013 or higher.

III. Expanded Course Description (150 words; primary course content, intended student level and role(s) course is to play in the curriculum)

Topics to be covered include an introduction to fundamental chemical laws, scientific method and measurement, atomic structure and its relationship to chemical bonding and the periodic properties of elements and compounds, stoichiometry, states of matter, and solutions.

This course is suggested for science majors and pre-professional students and is a pre-requisite for CHEM 1084 (College Chemistry II).

The course consists of three (3) lecture hours per week and three (3) laboratory hours per week for 4 hours of college credit.

IV. Intended Student Learning Outcomes? Required; **knowledge outcomes** (what students who successfully complete the course will be expected to know). Optional; **skill outcomes** (what students who successfully complete the course will be able to do). Optional; **value outcomes** (what students who successfully complete the course will value or appreciate).
knowledge outcomes

Upon completion of this course:

1. Students will be able to demonstrate a satisfactory understanding of chemical symbols, chemical nomenclature, chemical reactions as represented by chemical equations, and stoichiometry.
2. Students will be able to demonstrate a satisfactory understanding of aqueous solutions, electrolytes, solubility, and important types of chemical reactions in solution.
3. Students will be able to demonstrate a satisfactory understanding of the relationship between energy and chemical reactions.
4. Students will be able to demonstrate a satisfactory understanding of the structure of matter, the electronic structure of the atom, and the relationship of electronic structure to chemical properties and the Periodic Table.
5. Students will be able to demonstrate a satisfactory understanding of different types of chemical bonds which bind atoms together.
6. Students will be able to demonstrate a satisfactory understanding of the physical laws which govern the properties of gases and atmospheric chemistry.
7. Students will be able to demonstrate a satisfactory understanding of the solid and liquid states of matter.

skill outcomes

Upon completion of this course:

1. Students will be knowledgeable about chemical laboratory safety.
2. Students will be able to perform basic chemical observations and measurements.
3. Students will utilize dimensional analysis with correct significant figures.

value outcomes

Upon completion of this course:

Students will have an appreciation of the Scientific Method and the role of Chemistry in modern society.

V. Unless otherwise stipulated in this master syllabus by the department, the following items are subject to faculty discretion as described in each faculty member’s individual course outline/syllabus:

a) Course Requirements? (grading/evaluation procedures; class attendance policy; term papers, projects, field assignments; examinations; class participation, etc.)
Grading Policy:
Please refer to the current University Catalog for additional information regarding grades and course withdrawal policies. For this course, your grade will be determined in the following manner:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Grade:</td>
<td>50%</td>
</tr>
<tr>
<td>(Instructor will determine requirements)</td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
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<tr>
<td>(Departmental)</td>
<td></td>
</tr>
<tr>
<td>Laboratory Grade</td>
<td>25%</td>
</tr>
<tr>
<td>see Laboratory Manual</td>
<td></td>
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</tbody>
</table>

Although the lecture and laboratory portions of the class are graded independently, satisfactory completion of both is considered essential for a lab science course. Therefore, a passing grade in both lab and lecture is required to pass the course.

b) Required Text(s)?

Required Texts and Materials:

CHEMISTRY - The Central Science by Brown, LeMay and Bursten. 9th ed. (The homework/testing CD accompanying the text is also required).

GENERAL CHEMISTRY - Laboratory Manual, Department of Chemistry and Geosciences, Tarleton State University

Calculator - scientific type, nonprogrammable.
Protective eyewear for laboratory.

c) Bibliography?

Department Head Signature/Date:

_________________________________________  ____________/______/______
Signature                              Date