

# CHEM 1405 — Introductory Chemistry I

## Frank Phillips College

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### General Course Information

Credit Hours: 4

General Education Core Curriculum Course

### Prerequisite

None

### Course Description

Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and allied health students. This course emphasizes the study of scientific method, atomic and molecular structure, chemical bonds, periodic relationships of properties of elements, nuclear energy, properties of the states of matter and an introduction to hydrocarbons. Must be taken with a laboratory section.

THECB Approval Number .....40.0501.51 03

### Statement of Purpose

Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

### Core Objectives Required for Life and Physical Sciences Courses

Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method.

Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

- **Critical Thinking Skills** – to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Communication Skills** – to include effective development, interpretation and expression of ideas through written, oral and visual communication
- **Empirical and Quantitative Skills** – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **Teamwork** – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

## Learning Outcomes:

Upon successful completion of this course, students will:

1. Demonstrate the scientific method through practical applications in a laboratory or through problems.
2. Identify the limits of measurement through the use of the appropriate number of significant figures which correlates to accuracy and precision.
3. Comprehend the importance of models (theories) in science especially in their role in the development of modern day chemistry.
4. Describe and comprehend the results of the key experiments by Thomson, Millikan and Rutherford leading up to a model and nature of the atom; relate these experiments to the Bohr hydrogen atom model; relate electron configuration and atomic shape to periodicity and molecular shape.
5. Recognize and write names of chemical formulae, solve problems relating to molecular mass, moles and stoichiometry; compare the different gas laws;
6. Differentiate between the different ways solutions are measured; differentiate between different reactions to form products.
7. Distinguish between the different acid/base theories based on properties and actions; analyze the effects of acid/base chemistry on the environment.
8. Apply the concepts of oxidation and reductions to the environment and batteries.
9. Compare and contrast the different categories of organic molecules; relate naming schemes to structure.
10. Demonstrate effective use of basic laboratory techniques related to these studies.

## Method of Evaluation

1. Chapter Exams (50 % of total grade)
  - a. There will be up to 6 equally weighted exams. The first exam missed due to excused absences will be your dropped test. Further tests will be made up and may be oral.
2. Participation grade. (15% of total grade). Includes:
  - a. Homework requirements adequately met: (10 % of total grade)
  - b. Demonstrating that outside reading was met. (5% of total grade)
3. Writing assignment (10% of total grade)
4. Lab activities (25% of grade): The lowest individual lab grade will be dropped. There are no make up labs. Grading will be based on your data, calculations and the discussion of results and conclusions using post lab questions.
5. Final grade derived will be reported as: 90 -100= A, 80 - 89= B, 70 - 79= C, 60 - 69= D, <60 = F. Students will receive their semester grades & other course information on line. Semester grades are reported on line. Students are responsible for checking their grades to see how they are doing throughout the semester.

Category	Percentage
Tests	50%

Labs	25%
Homework	10%
Articles	5%
Paper	10%
Total	100%

### **Academic Honesty and Integrity**

Students attending Frank Phillips College are expected to maintain high standards of personal and scholarly conduct. Academic dishonesty including, but not limited to, cheating, collusion (working with anyone else to produce work for which you take credit without the professor's permission), utilizing resources such as books and notes for a test without the professor's permission, and plagiarism is considered a serious offense and may result in disciplinary actions including:

- A grade of 0 for the test or assignment
- A semester grade of F for the course
- Administrative withdrawal from the course
- Academic suspension

### **Class Attendance**

Regular attendance is necessary for satisfactory achievement. Therefore, it is the responsibility of the student to attend class in accordance with requirements of the course as established by the instructor.

Students will be excused from class without penalty when either representing the college in an approved activity or having an approved reason for not attending. Reasons for absences must be approved by the instructor of the course. These exceptions do not relieve the student of the responsibility of making up the missed work as designated by the instructor concerned.

**Students who enroll in one or more college-preparatory course(s) because of TSI deficiency will be administratively withdrawn from all classes if the course in which they are excessively absent is their only preparatory course.** For a student enrolled in more than one preparatory course, the student may be dropped from only the course affected by absences.

Any student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day, provided that proper notification of the absence is given to the instructor of the course missed. The student should notify the instructor within the first fifteen (15) days of the semester that he or she intends to be absent on the specified holy day.

### **Cell Phones and Other Electronic Devices Procedure:**

Cell phones and electronic devices in the classroom create a distraction for both students and faculty. Cell phones are also considered suspicious during test taking. Therefore, Frank Phillips College outlines the procedure for handling cell phone usage in a classroom as follows:

1. First Offense: the student will be warned verbally by the instructor to turn off the cell phone or electronic device or by appropriate administrative personnel at distance sites. The instructor will make a notation of the infraction.
2. Second Offense: the student will be asked to leave the class period for the day and will receive zeros for any work done in class on that day; a student receiving instruction through remote connection at an off-campus site will be required to attend the class face to face in Borger from this class date forward.
3. Third Offense: the student will be administratively withdrawn from the class in which the infraction occurred and will receive no refund for the class.

Students should leave the college's main number with an appropriate contact in case of an emergency.

Borger: (806) 457-4200, ext. 0 or 886-5047 after hours

Perryton: (806) 648-1450

Dalhart: (806) 244-7669

### **Grievance Policy**

If you have a dispute concerning your grade or policies in this class, it is your responsibility to FIRST contact the instructor, either by e-mail or in person, to discuss the matter. Should things remain unresolved after this initial contact, please follow the procedures described in the Academic Policies section of the Frank Phillips College Catalogue. In the vast majority of cases, the matter can be resolved at the instructor/student level, and learning to communicate your concerns in a civilized manner is part of the college experience.

### **Important Information**

Frank Phillips College is a Microsoft Office Campus. You must submit your electronic assignments in Microsoft Office programs only. If you do not have Microsoft Office, you may use one of the computer lab sites on campus for your class work.

### **Scans/Or Core Competencies That Will Be Addressed in the Class**

#### **Resources:**

Allocates Time

Allocates Money

Allocates Material & Facility Resources

#### **Information:**

Acquires & Evaluates Information

Organizes & Maintains Information

Uses Computers to Process Information

#### **Interpersonal:**

Participates as a Member of a Team

Teaches Others

Serves Clients/Customers

Exercises Leadership

#### **Thinking Skills:**

Creative Thinking

Decision Making

Problem Solving

Seeing Things in the Mind's Eye

Negotiates to Arrive at a Decision  
Works with Cultural Diversity

**Technology:**

Selects Technology  
Applies Technology  
Maintains & Troubleshoots Technology

**Basic Skills:**

Reading  
Writing  
Arithmetic  
Mathematics  
Listening & Speaking

Knowing How to Learn  
Reasoning

**Systems:**

Understands Systems  
Monitors & Corrects Performance  
Improves & Designs Systems

**Personal Qualities:**

Responsibility  
Self-Esteem  
Sociability  
Self-Management  
Integrity/Honesty