COURSE NUMBER: CHEM 1411

COURSE TITLE: General Chemistry I

CREDIT HRS: 4  LECTURE HRS: 3  LAB HRS: 3  CLN/REC HRS: 1

PREREQUISITE: Pass Reading requirement of TSI; Math 1314 within the last five years with a grade of C or better, and either one year of high school chemistry or CHEM 1405 within the last five years with a grade of C or better.

CO-REQUISITE: Concurrent enrollment in CHEM 1411 (lecture) and CHEM 1411 (recitation). You may repeat this course only once after receiving a grade, including W.

COURSE DESCRIPTION:
A classical chemistry course designed for science majors, pre-medical, dental or engineering students. Topics include stoichiometry, ideal gas behavior, atomic theory, periodic trends, VSEPR theory, thermochemistry and bonding theory. Laboratory exercises reinforce concepts presented in class and develop basic lab skills.

COURSE CONTENT: All experiments for this course are available for download at http://www.collin.edu/chemistry. Choose your term (fall, spring, or summer) from the course information tab and then select the link for the Chem 1411 lab schedule. Click on an experiment title to access the file.

SUPPLIES:
Students must supply their own goggles (required), gloves, and aprons that meet the safety requirements of the Chemistry Department (Goggles are not the same as safety glasses; glasses are not sufficient protection. Faculty members will not permit their use)

EXPECTED STUDENT LEARNING OUTCOMES:
Upon successful completion of this course, students will:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions.
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
12. Determine the role of energy in physical changes and chemical reactions.
13. Convert units of measure and demonstrate dimensional analysis skills.
14. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
15. Demonstrate safe and proper handling of laboratory equipment and chemicals.
16. Conduct basic laboratory experiments with proper laboratory techniques.
17. Make careful and accurate experimental observations.
18. Relate physical observations and measurements to theoretical principles.
19. Interpret laboratory results and experimental data, and reach logical conclusions.
20. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
21. Design fundamental experiments involving principles of chemistry.
22. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

A. Using critical thinking, explain and describe qualitatively, quantitatively and symbolically chemical compounds (including formulas and names) and different types of chemical reactions. (Critical Thinking, Communication Skills, and Empirical/Quantitative)
B. Determine and explain types of bonding, geometry, bond strength, and polarity. (Communication Skills and Empirical/Quantitative)
C. Apply different atomic theories and models to predict and explain periodic trends. (Critical Thinking and Empirical/Quantitative)
D. Qualitatively and quantitatively describe properties of matter in terms of states and classification (pure vs. mixture). (Empirical/Quantitative)
E. Use laws of thermodynamics critically to qualitatively and quantitatively express heat changes associated with different processes. (Critical Thinking and Empirical/Quantitative)
F. Safely work in teams in the laboratory to collect data (both electronically and manually), make measurements, make observations and conduct reactions; qualitatively and quantitatively and critically analyze lab data and communicate results using both written and electronic formats. (Critical Thinking, Communication Skills, Empirical/Quantitative, and Teamwork)

COURSE REQUIREMENTS:
May include, but are not limited to, lab reports, prelab assignments, lab quizzes, lab practicum or safety presentations.

COURSE FORMAT:
May include but not limited to lectures, transparencies, videos, computer software, demonstrations, hands-on exercises, and student presentations.

METHOD OF EVALUATION:
Lecture average = 70% final grade
Recitation = 10% final grade
Lab average = 20% final grade
100% course grade for 4 college credits

Your laboratory instructor will advise, by written addendum, of the specific aspects of the grading policy that apply to your lab section. The policy of the Chemistry Department mandates that 20% of your final grade in the Chem1411 block (lecture, lab, and recitation giving you 4 college credits in a lab science) will be based upon your final lab grade. Components of the lab average may include, but are not restricted to lab reports, prelab assignments, lab quizzes, lab practicum or safety presentations.
RECITATION:
Recitation is a component of this course that enhances critical thinking and problem solving. This component will include, but is not limited to, some hands-on activities as well as group activities/discussions, and writing. **Attendance and participation will impact your grade.**

ATTENDANCE POLICY:
Students should attend all laboratory classes. There are **NO** make-up labs. Absences will be averaged as a zero. The lowest grade will be dropped. **If four or more labs are missed, the final lab average will be 0.00% at the end of the semester.** The instructor may bar students who miss the prelab lecture or who are not properly prepared to perform a lab from performing the lab in question. Students who elect to stop attending lab should officially drop this course. Please see the schedule of classes for the last day to withdraw. Religious Holy Days: refer to Chapter 6 Procedures, section 23 in current CCCCD Student Handbook.

ADA STATEMENT:
It is the policy of Collin County Community College to provide reasonable and appropriate accommodations for individuals with documented disabilities. This College will adhere to all applicable Federal and state laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student’s responsibility to contact the ACCESS office, (room G-200, Spring Creek Campus) or 972.881.5898, in a timely manner if he/she desire to arrange for accommodations.

ACADEMIC ETHICS:
The college may initiate disciplinary proceedings against a student accused of scholastic dishonesty. Scholastic dishonesty includes, but is not limited to, statements, acts, or omissions related to applications for enrollment or the award of a degree, and/or the submission of material as one’s own work that is not one’s own. Scholastic dishonesty may involve one or more of the following acts: cheating, plagiarism, collusion, and/or falsifying academic records. Cheating is the willful giving or receiving of information in an unauthorized manner during an examination, illicitly obtaining examination questions in advance, using someone else’s work for assignments as if it were one’s own, copying computer or Internet files, and any other dishonest means of attempting to fulfill the requirements of a course. Plagiarism is the use of an author’s words or ideas as if they were one’s own without giving credit to the source, including, but not limited to, failure to acknowledge a direct quotation. Collusion is intentionally aiding or attempting to aid another in an act of scholastic dishonesty, including but not limited to, providing a paper or project to another student; providing an inappropriate level of assistance; communicating answers to a classmate during an examination; removing tests or answer sheets from a test site, and allowing a classmate to copy answers.