

Chem 1412

**General Chemistry II
(Majors)**

Department of Chemistry

**Division of Arts and Sciences
Plainview High School Campus
South Plains College**

Spring 2019

**Tracy Dawson
Dual Credit Chemistry**

Instructor: Tracy Dawson

Office: Plainview High School, S-84

Office Telephone: 806-293-6005

E-mail: tracy.dawson@plainviewisd.org

CHEM 1412 General Chemistry II (Majors)

Prerequisite: High School Chemistry, CHEM 1301 or equivalent, High School Algebra I and II, Chemistry 1411 or concurrent enrollment in MATH 1314, or permission of instructor

Credit: 4 **Lecture:** 3 **Lab:** 3; This course satisfies a core curriculum requirement for Life and Physical Science

Texts: Zumdahl, S. & S., *Chemistry*, 9th Ed., Hague, George R. Jr. and Smith, Jane D. *The Ultimate Chemistry Equations Handbook*. Flinn Scientific, Inc. Copyright 2001, Jespersen, Neil D. Ph.D. *Barron's - How To Prepare for the Advanced Placement Examination - Chemistry*. Barron's Educational Series, Inc. Copyright 1995.

Lab Manuals: Vonderbrink, Sally Ann Ph.D. *Laboratory Experiments for Advanced Placement Chemistry*. Flinn Scientific, Inc. and Sally Vonderbrink. Copyright 1995, Beran, J.A. *Laboratory Manual For Principles of General Chemistry*. John Wiley and Sons, Inc. 5th ed. Copyright 1994, Milio, Frank R., Debye W.G., Nordulf and Metz, Clyde. *Experiments in General Chemistry*. Saunders College Publishing. Copyright 1991, Summerlin, Lee R. and Ealy, James L. Jr. *Chemical Demonstrations*. American Chemistry Society. Copyright 1988, Slowinski, Emil J., Wolsey Wayne C. and Masterton, William L. *Chemical Principles in the Laboratory*. Harcourt College Publishers. Copyright 2001, I also use Science Workshop - *Chemistry Labs with Computers* published by Pasco scientific in 1996 and *Flinn ChemTopics Labs - Equilibrium (vol. 15) and Thermo chemistry (vol. 10)*

Policies, Procedures, and Rules:

This course will be conducted according to the policies and procedures of the South Plains College Student Handbook and General Catalog.

Attendance Policy:

Lecture and laboratory attendance is mandatory. If a student has to miss class for an unavoidable absence they are responsible for all work covered while they were gone. The students must complete the missed work within one week after they return to class.

Grades:

Students will be graded on weekly quizzes, lecture and lab exams, lab activities, and homework. Lecture and lab exams will be announced in advance. There will be no extra credit for this course.

Exams	40%
Quizzes/lab activities/homework	60 %

Grading Policy:

90 or above =A
80-89 =B
70-79 =C
Below 70 =F

Diversity Statement

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disabilities Statement

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Non-Discrimination Statement

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement

If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact Crystal Gilster, Director of Health and Wellness at 806-716-2362 or email at cgilster@southplainscollege.edu.

Academic Integrity:

It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his own any work, which he has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension. Cheating will not be tolerated.

Electronic Devices:

All electronic devices need to be off or on silent and out of site during class. There is no exception to this rule.

Material Safety Data Sheets (MSDS):

MSDS sheets that explain potential hazards which may be incurred while using various chemicals in the laboratory are located in the storeroom in between rooms S83 and S84. Your instructor also has a MSDS CD-Rom with the same necessary information. All students are encouraged to read about the chemicals they are using in lab from the MSDS notebook or CD-rom. Please notify the instructor if you need assistance.

Semester Topic Schedule

Week 1 – 3	Chapter 12	Kinetics
	Chapter 11	Aqueous Solutions
Week 4-5	Chapter 13	Equilibrium
	Chapter 14	Acids and Bases
Week 9-12	Chapter 15	Acid/Base and Solubility Equilibrium
Week 13-14	Chapter 17	Thermodynamics
Week 15-17	Chapter 18	Electrochemistry
	Chapter 19&22	Nuclear chemistry/Organic naming
Week 18	Review for Semester Exam and Exam	

Student Learning Outcomes/Competencies:
Upon successful completion of this course, students will:

From Lecture:

1. Determine integrated/differential rate laws, reaction mechanisms, and catalysts.
2. Calculate concentration, find energy of solution, solve vapor pressure, freezing point depression/boiling point elevation, osmotic pressure.
3. Write equilibrium expressions, determine position, LeChateliers principle
4. Understand acid/base models, strengths, pH scale, polyprotic acids, A/B properties of salts
5. Understand common ion effect, buffer solution and capacity, titration, indicators, solubility product
6. Compare the 3 laws of thermodynamics. Calculate Gibbs Free Energy
7. Balance redox equations, draw galvanic cells, calculate cell potential, work, free energy, concentration cells, electrolysis of water
8. Balance nuclear equations, calculate $\frac{1}{2}$ life, name organic compounds

From Lab:

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Core Objectives to be addressed:

1. Communication – to include effective written, oral and visual communication
2. Critical Thinking Skills – to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
3. Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
4. Teamwork Skills – to include the ability to consider different point of view and to work effectively with others to support a shared purpose or goal