



CHEM 1211 – Principles of Chemistry I

Course Syllabus – Spring 2016

Student learning disabilities documented through the Disability Services Coordinator (Student Center 255, (678) 466-5445, disabilityservices@mail.clayton.edu) will be honored as detailed to the instructor. Please inform the instructor *within the first week of the course or as soon as possible*.

Course Information

Course Description:

- **Number and Title:** CHEM 1211 (CRN 20333), Principles of Chemistry I
- **Credit Hours:** 3.0 semester credit hours (3-0-3)
- **Catalog Description:** First course in a two-semester sequence covering the fundamental principles and applications of chemistry for science majors. Topics to be covered include composition of matter, stoichiometry, periodic relations, and nomenclature.

Course Prerequisites and Co-requisites:

- Pre-requisites: MATH 1112A (or MATH 1113 or MATH 1501) with a minimum US grade of D (can be taken concurrently).
- Co-requisites: CHEM 1211L

Note: Due to the co-requisite nature of CHEM 1211 and CHEM 1211L, students dropping one of the two courses must also drop the other.

Instructor Information:

- **Instructor:** Dr. John Meyers
 - E-mail: JohnMeyers@clayton.edu
 - Phone: (678) 466-4773
 - Internet: www.clayton.edu/faculty/jmeyers2
- **Office:** Lakeview Discovery and Science Center, Room 235D
- **Office hours:** T 9:30–10:30 am & 1–3 pm; W 10–12 pm; R 9:30–10:30 am; “open door,” and by appointment

Class Meetings:

- **Lecture room and times:** Tuesday and Thursday, 11:15 – 12:30 pm, Lecture Hall B13

Textbook Information:

- **Text:** Tro, Nivaldo. *Chemistry: Structures and Properties* (1st ed.); Pearson: 2015.
- **Text ISBN-13:** 978-0321834683
- **Text coverage:** Chapters 1 – 11

Students are encouraged to use PriceLoch.com to comparison shop for textbooks.

Additional Required Materials:

- **Note taking system:** Based on your preferences (e.g., spiral notebook)
- **MasteringChemistry online homework system:** Register at www.masteringchemistry.com with Course ID **MCMEYERS86700**. Purchase at bookstore or from publisher online.
- **Calculator:** A simple calculator capable of scientific notation will suffice. Graphing calculators are not required, but are permitted.
- **Access to Desire2Learn (D2L):** Sign in through the SWAN or <https://clayton.view.usg.edu/>. Announcements and supplemental information such as course notes may be found on D2L. If you experience any difficulties in D2L, please email or call The HUB at TheHUB@clayton.edu or (678) 466-HELP.
- **Access to CSU email:** Important course announcements will be sent via email to your CSU email address. You are expected to check your CSU e-mail account regularly.

Computer Requirement:

Each CSU student is required to have ready access throughout the semester to a notebook computer that meets faculty-approved hardware and software requirements for the student's academic program. Students will sign a statement attesting to such access. For further information on CSU's Official Notebook Computer Policy, please go to <http://www.clayton.edu/hub/itpchoice/notebookcomputerpolicy>.

Computer Skill Prerequisites:

Ability to use your computer's operating system (Windows or Mac OS X), Microsoft Word™ word processing, send and receive e-mail via CSU account, attach and retrieve attached files via email, and use a Web browser (Google Chrome or Mozilla Firefox recommended).

In-Class Use of Student Notebook Computers:

Computers will be required to access course materials and to communicate with your instructor. Notebook computers, tablets, or smart phones may be required to access Learning Catalytics for in-class participation. Computers, smart phones, and tablets are prohibited during exams (see course policies).

Program Learning Outcomes:

- **General education outcomes:** The following link provides the Clayton State University Core Curriculum outcomes on page 107 (see Area D):

[http://www.clayton.edu/portals/922/docs/Student Handbook and Undergraduate Academic Catalogn 2015-2016 reduced.pdf](http://www.clayton.edu/portals/922/docs/Student%20Handbook%20and%20Undergraduate%20Academic%20Catalogn%202015-2016%20reduced.pdf)

- **Biology outcomes:** CHEM 1211 is a required course in the B.S. degree program in Biology. CHEM 1211 supports outcomes 3 and 5 of the biology major.
<http://www.clayton.edu/science/Outcomes>
- **Chemistry outcomes:** CHEM 1211 is a required course in the B.S. degree program in Chemistry. CHEM 1211 supports outcomes 1, 4, 5, and 6 of the chemistry major.
http://www.clayton.edu/chemistry-physics/program_outcomes

Course Learning Outcomes:

- Perform conversions between units.
- Differentiate between molecules, ions, molecular compounds, and ionic compounds.
- Interpret simple chemical nomenclature.
- Perform stoichiometric calculations and identify types of reactions.
- Analyze atomic and molecular structures.

Assignments and Evaluations

Evaluation:

A student's grade is based on the section in which he or she is enrolled and will be determined by his or her performance on the following types of assignments. This class will not be graded on a curve.

Type	Percentage
Assignments (e.g., problem sets)	30 %
In-class exams	45 %
Comprehensive final exam	25 %

Grading Scale:

Letter grades will be assigned based on your final percentage as follows:

Letter Grade	Percentage
A	90 – 100
B	80 – 89
C	70 – 79
D	60 – 69
F	< 60

Grading Philosophy:

A.....The student demonstrates an ability to understand the course material, to apply the material to new problems and situations, and to communicate learned knowledge. The student exhibits overall excellence without major weaknesses.

B.....The student demonstrates an ability to understand the course material. The student is able to apply the material to new problems and situations as well as communicate learned knowledge to a limited extent. The student exhibits more strengths than weaknesses.

C.....The student demonstrates an ability to understand facts relative to the course material. The student exhibits an almost equal amount strengths and weaknesses.

D.....The student demonstrates a partial ability to understand facts relative to the course material. The student exhibits more weaknesses than strengths.

F.....Submitted work is unacceptable such that the student exhibits a lack of understanding and/or effort.

Exams:

There are three in-class exams during the course of the semester and a comprehensive final exam during finals week. All exams take place in the assigned lecture hall for our class (see "Class Meetings" above).

Exam #1: Thursday, February 11th, 11:15 – 12:30 pm

Exam #2: Thursday, March 24th, 11:15 – 12:30 pm

Exam #3: Thursday, April 21st, 11:15 – 12:30 pm

Comprehensive final exam: Thursday, May 5th, 10:15 – 12:15 pm

Assignments:

Online homework will be assigned through the *MasteringChemistry* system and is to be completed outside of class. There will be approximately one homework assignment for each chapter. Please register as soon as possible to ensure your access. Assignments consist of two parts: (1) practice problems where the answer is posted in the book; (2) graded problems for which each student is accountable. The homework is designed to be a learning experience. Take every problem seriously, work on the practice problems and the graded problems well before the deadline, and make sure that you can work through a problem under 'exam conditions' when you are done with the homework. MasteringChemistry comes with a built-in "Study Area," which can prove useful when studying for exams – this area can be found at the top, right corner when signed in.

In-class quizzes may be given between exams with advanced notice (i.e., no pop quizzes) and are designed to reinforce recent lecture topics. Quizzes will never be given in a week with a scheduled exam.

Mid-term Progress Report:

The mid-term grade in this course, which will be issued on February 29, reflects approximately 15% of the entire course grade. Based on this grade, students may choose to withdraw from the course and receive a grade of "W." Students pursuing this option must fill out an official withdrawal form, available in the Office of the Registrar, or withdraw on-line using the SWAN by mid-term, which occurs on March 4. Instructions for withdrawing are provided at <http://www.clayton.edu/registrar/withdrawal>.

The last day to withdraw without academic accountability is Friday, March 4, 2016

Course Policies

General Policy:

Students must abide by policies in the Clayton State University Student Handbook, and the [Basic Undergraduate Student Responsibilities](#). The Student Handbook is part of the [Academic Catalog and Student Handbook](#), which begins on page 6.

University Attendance Policy:

Students are expected to attend and participate in every class meeting. Instructors establish specific policies relating to absences in their courses and communicate these policies to the students through the course syllabi. Individual instructors, based upon the nature of the course, determine what effect excused and unexcused absences have in determining grades and upon students' ability to remain enrolled in their courses. The university reserves the right to determine that excessive absences, whether justified or not, are sufficient cause for institutional withdrawals or failing grades.

Course Attendance Policy:

Students are expected to attend all classes and required to take all examinations. You are responsible for any material covered should you miss a lecture. Notify me of any conflicts as early as possible.

Missed Work:

A grade of zero will be recorded for any missed assignment worth points (e.g., an exam or in-class assignment) that stems from an unexcused absence. Excused absences, for which documentation is required upon request, are considered to be illness, dire circumstance, death in the family, or pre-approved absences (e.g., a university-sponsored event).

There will be no make-up opportunities for quizzes or problem sets. Make-up exams cannot be arranged without a valid excused absence as described above and will not be administered after graded exams have been returned to the class (Exception: The final exam must be taken when specified by the Registrar's Office). In the event an exam make-up cannot be arranged, the missed exam will not count in the course grade calculation such that other exams of the same type will bear a greater weight or the final exam grade will be substituted in for the missing exam grade. Please notify me in advance if you think you may miss an exam.

Academic Dishonesty:

Absolute academic integrity is expected. Any type of activity that is considered dishonest by reasonable standards may constitute academic misconduct. Plagiarism, data fabrication, or other types of cheating will be dealt with severely. All instances of academic dishonesty will, at a minimum, result in a grade of zero for the work involved and can result in expulsion from the institution. Two violations in a semester will result in a failing grade in the course. According to university policy, all instances of academic dishonesty will be reported to the [Office of Community Standards](#). Judicial procedures are described beginning on page 19 in the section of the [Academic Catalog and Student Handbook](#) titled, Procedures for Adjudicating Alleged Academic Conduct Infractions.

Disruption of the Learning Environment:

Behavior that disrupts the teaching–learning process during class activities will not be tolerated. While a variety of behaviors can be disruptive in a classroom setting, more serious examples include belligerent, abusive, profane, and/or threatening behavior. A student who fails to respond to reasonable faculty direction regarding classroom behavior and/or behavior while participating in classroom activities may be dismissed from class. A student who is dismissed is entitled to due process and will be afforded such rights as soon as possible following dismissal. If found in violation, a student may be administratively withdrawn and may receive a grade of WF. More detailed descriptions of examples of disruptive behavior are provided in the CSU [Academic Catalog and Student Handbook](#) starting on page 14.

Other Policies and Additional Information:

- **Contacting Me:** In general, the best way to contact me is via email. Keep in mind that an e-mail is a professional communication so be sure to use full sentences with proper spelling and grammar. Please include the course number and a relevant topic in the subject line. If you haven't heard back from me within 24 hours, please email me again.
- **Classroom Etiquette:** Consider the classroom to be a professional setting. Although much of the learning in college occurs outside of the classroom, the time we spend together in class plays a major part in your understanding of the course material. Cell phones and other electronic devices capable of being a distraction to any one are not to be seen or heard in the classroom. Questions are encouraged at any point.
- **Office Hours:** I will maintain an open door policy in addition to my posted office hours. This means that I am available for help when needed. If I am unavailable when you stop by, I will make an appointment to speak with you at a later time.
- **Questions/Extra Help:** If you have questions concerning course content, I encourage you to *ask questions* in or after lecture, send questions via *email*, *make an appointment* to meet with me outside of class, or *stop by my office*. The Center for Academic Success can also offer tutoring support, which can be viewed at <http://www.clayton.edu/cas/Tutoring>. I am willing to hold review sessions prior to exams at a time that is convenient to the majority of the class.
- **Technology Policy:** We will be using several online technologies this semester, including online submission of assignments. Technology mishaps are not an emergency, but a regular part of using online systems and computers. You are responsible for submitting your work in sufficient time to accommodate potential network outages or computer mishaps. Crashed computers, downed networks, and virus attacks are not a valid excuse for late assignments. Save often, back up your work, and be prepared (The University recommends Microsoft OneDrive). Assignments cannot be submitted by email.
- **Exam-Related Policies:**
 - Scientific calculators can be used for solving mathematical operations on exams, but are not to be used to store formulas, text, and/or other materials that would constitute cheating.
 - Only a writing utensil(s) and calculator are permitted at examinations, which are closed book. Any other needed items will be provided by the instructor. All other items (e.g., notes and cell phones) will be stored out of direct sight such as in a closed book bag. Use of a cheat sheet, smart phone, tablet, laptop, etc. is considered cheating and subject to academic dishonest punishments described above.
 - Re-grades of exams must be requested within one week of the date that the graded exams are returned to students. Note that the entire exam is subject to re-grade and may actually result in a lower overall exam grade.

Tentative Lecture Schedule: Exam dates are established; minor changes are possible at the discretion of the instructor (chapters and sections are keyed to Tro's Chemistry: Structure and Properties, 1st edition)

Date	Topic	Chapter/Section
T 1/12	Course introduction; matter; properties; atomic theory	1.1 – 5
R 1/14	Measurements; atomic structure; subatomic particles; atomic mass	1.6 – 9
T 1/19	Measurements; density; energy; dimensional analysis	2.1 – 5
R 1/21	Problem solving; atomic mass; molar mass; mole concept	2.6 – 8, A1 – A3
T 1/26	Nature of light; atomic spectroscopy; Bohr model	3.1 – 4
R 1/28	Wave nature of matter; quantum mechanics and orbitals	3.5 – 6
T 2/2	Quantum mechanics and orbitals (continued)	3.5 – 6
R 2/4	Periodic table; electron configurations; valence electrons	4.1 – 4
T 2/9	Electron configurations; atomic properties; periodic trends	4.5 – 7
R 2/11	Exam 1 (See study guide for details)	
T 2/16	Chemical bonds; chemical formulas and molecular models	4.8, 5.1 – 4
R 2/18	Ionic/molecular compounds & models; composition of compounds	5.5, 6, 8, 10
T 2/23	Covalent bonding; empirical formula; Lewis structures;	5.7, 9, 11, 6.1 – 2
R 2/25	Electronegativity; Formal charge, resonance, and exceptions	6.3 – 5
T 3/1	Bond energies/lengths; Molecular geometries	6.6 – 9
R 3/3	Molecular geometries (continued) and molecular polarity	6.9 – 10
F 3/4	Semester Midpoint: Last day to drop without academic accountability	
T 3/8	No Class – Fall Break	
R 3/10	No Class – Fall Break	
T 3/15	Valence bond theory; hybridization	7.1 – 3
R 3/17	Molecular orbital theory (continued); bond order; magnetism	7.4
T 3/22	Molecular orbital theory (continued)	7.4
R 3/24	Exam 2 (See study guide for details)	
T 3/29	Chemical changes, equations, and types; stoichiometry	8.1 – 4, 6
R 3/31	Limiting reactant; theoretical yield; percent yield	8.5
T 4/5	Solutions: concentration, dilution, and stoichiometry	9.1 – 3
R 4/7	Aqueous solutions and solubility; precipitation reactions	9.4 – 6

Date	Topic	Chapter/Section
T 4/12	Acid-base and redox reactions	9.7 – 9
R 4/14	Nature of energy; 1 st law of thermodynamics; heat; heat capacity	10.1 – 4
T 4/19	Work; calorimetry; enthalpy and reactions;	10.5, 7, 6
R 4/21	Exam 3 (See study guide for details)	
T 4/26	Determining and using enthalpy of reaction; pressure; simple & ideal gas law; mixtures of gases	10.6, 8 – 10, 11.1 – 6
R 4/28	Kinetic molecular theory; molecular velocity; effusion and diffusion (Graham's law); gases and stoichiometry	11.7 – 11
R 5/5	Final Exam (10:15 – 12:15 pm)	

Last updated: December 29, 2015