



CHEM 102
The Molecular World
4.0 Units
Fall 2019

Lectures: 12:00-12:50pm M, W, F in GFS 101

Discussion: 3:30-4:50pm, Th in SOS B44

Website: This course uses Blackboard

Instructor: Prof. Jasmine Bryant

Office: SGM 450

Office Hours: T 1-2:30pm and W 10-11:30am

Contact Info: bryantja@usc.edu (preferred contact method), Phone: 213-740-3235

You can expect a reply to email within 48 hours during weekdays.

Teaching Assistant:

Name: Laura Mugica Sanchez

Contact Info: mugicasa@usc.edu

Course Description

Welcome to CHEM 102. This is a one semester, rigorous introductory chemistry lecture course that covers important aspects of general chemistry. The relevant chemistry topics include: structures and reactions of molecules, stoichiometry, nomenclature, gases, solutions. Most students taking the course are preparing to enter the 105a/b General Chemistry sequence.

Learning Objectives and Outcomes

- Demonstrate the ability to interpret and analyze quantitative information; apply mathematical principles and techniques; and to use mathematical models to solve applied problems.
- Express measurements in a variety of unit systems.
- Describe the role of protons, neutrons, and electrons in chemical and physical transformations, reactions, and trends.
- Construct and analyze Lewis structures for covalent compounds. Use these structures to predict the three-dimensional shapes of molecules and their interactions with each other.

- Use chemical formulas and knowledge of reaction types to classify compounds into various categories: acids/bases; ionic/covalent; strong/weak electrolytes; oxidants/reductants
- Demonstrate how the particulate nature of chemical reactions relates to limiting reactants and use this to predict product yields.
- Demonstrate how the behavior of gas phase chemical systems respond to changes in conditions.
- Correlate the physical and chemical properties of molecules with the energy released or absorbed in chemical reactions.
- Describe the composition and concentration of solutions involving solids, liquids, and / or gases.

Prerequisite(s): None.

Recommended Preparation: Some familiarity with chemistry is helpful, but not required.

Course Notes

Lecture notes will be available on the course website. This course uses PollEverywhere for in-class work. An internet-enabled device is required for every class meeting. Chem 105 requires every student use the exact same calculator on exams, the Texas Instruments TI 30x IIS, which is around \$10-15. You will be required to use the same calculator in this course to become more comfortable with its use.

Required Readings and Supplementary Materials

Textbook: Introductory Chemistry: An Active Learning Approach, Cracolice & Peters, 6th Edition (available in bookstore, ebook available). (Cengage Unlimited is NOT required). An internet-enabled device is required in class (cell phone, laptop, tablet).

Description and Assessment of Assignments

Assignments in the course include exams, homework, and in-class work (typically worksheets and in-class “clicker” questions).

Grading Breakdown

There will be three one-hour exams and a final exam. Your grade will be determined according to the following distribution:

Assignment	Points	% of Grade
Exam 1	120	12%
Exam 2	120	12%
Exam 3	120	12%
Homework (14 @ 10pts.)	140	14%
In-Class Work	300	30%
Final Exam	200	20%
TOTAL	1000	100%

You are encouraged to check your grades on the Chem 102 website.

Grading Scale

Course final grades will be determined using the following scale

A	95-100%
A-	90-94%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	63-66%
D-	60-62%
F	59% and below

Assignment Details

Homework: There will be a weekly homework assignment that will be distributed online and due Mondays (with some exceptions) at the beginning of class. The homework assignment will be graded in two parts: 5 points for a randomly-chosen problem completed correctly; 5 points for completion of the entire assignment. Note: If the randomly chosen problem is not completed, you will receive a zero on the assignment. It is recommended that you complete every assigned problem on every assignment. Homework will be submitted via Blackboard. While Blackboard will allow submissions after the deadline, these late assignments will not be scored.

In-Class Work: There will be worksheets and in-class “clicker” questions during lecture and the required problem-solving sessions on Thursdays. Worksheets will be distributed and collected in the same class period. Clicker responses are recorded via Poll Everywhere at pollev.com/bryantchem

Assignment Submission Policy

Homework assignments are due via Blackboard before the deadline. Neither late homework nor non-Blackboard submissions will be accepted. There are no make-ups for in-class work.

Grading Timeline

Graded exams will be scanned and returned electronically within 48 hours of the exam.

Additional Policies

Exams: There will be three midterms and a final. No make up exams will be given. *An unexcused missed hour exam will be counted as a zero towards your final grade.* The comprehensive final exam will be given on *Friday, December 13, 11am-1pm*. All electronic devices such as cell phones are prohibited and cannot be used for any purpose during the exam, including keeping time. No one will be allowed to enter the exam room late or to leave early. Graded exams will be scanned and available for viewing/printing from the class web site via the class password you set up. Only Texas Instruments TI 30x IIS calculators may be used on the exam.

Attendance: Attendance in all classes, including the problem-solving sessions on Thursday afternoons, is required. There are no make-ups for missed in-class work, but 10% of poll questions and your two lowest in-class worksheet scores will be dropped to account for technical difficulties and / or unavoidable absences.

Exam Absences: Make-up exams will not be given under any circumstances. Absences will be excused based on official University policy (verifiable illness or necessity). An excused absence from an exam will be granted only on the basis of proper documentation such as a certification provided by a physician or hospital. If you are ill or cannot attend the exam for any reason, please contact Dr. Bryant immediately (email is preferred: bryantja@usc.edu) and ideally BEFORE your absence. All excuses will be verified. Unexcused absences will result in a zero on the exam. **Students must take at least two of the three midterms and the final.**

Course Schedule: A Weekly Breakdown

	Topics	Readings	Assignments
Week 1	M: Course Intro W: Manipulating Equations F: Exponents & Logs	Appendix 1, Chapter 1	Section: Fractions & Word Problems (WS #1)
Week 2	M: LABOR DAY W: Matter & Energy F: Measurement & Sig. Figs.	Chapter 2	Due 9/4: Homework #1 Section: Properties (WS #2)
Week 3	M: Scientific Notation & SI Units W: Scientific Method & Study Habits F: Temperature & Density	Chapter 3	Due 9/9: Homework #2 Section: Sci. Method & Measurement (WS #3) <i>Sept. 13: Last day to drop without a "W" to avoid tuition charges</i>
Week 4	M: Intro. to Gases W: Gases F: Intro. to the Atom	Chapter 4	Due 9/16: Homework #3 Section: Temperature & Changes (WS #4)
Week 5	M: Electromagnetic Radiation W: Exam Review F: Electronic Configuration	Chapter 5	Due 9/23: Homework #4 EXAM 1 – Thursday, Sept. 26 at 3:30pm in SOS B44
Week 6	M: Valence Electrons & Trends W: Ions & Isotopes F: Formula Mass & Periodic Table	Chapter 5, 11	Due 9/30: Homework #5 Section: The Atom (WS #5)
Week 7	M: Electronic Structure W: Octet Rule F: Chemical Bonding	Chapter 12	Due 10/7: Homework #6 Section: Atoms & Molecules (WS #6) <i>Oct. 11: Last day to drop without a "W" but still incur tuition charges for this class</i>
Week 8	M: Lewis Dot Structures W: VSEPR F: FALL BREAK	Chapter 13	Due 10/14: Homework #7
Week 9	M: Complex Molecules W: Exam Review F: Formal Charge & Naming	Chapter 13, 6	Due 10/21: Homework #8 EXAM 2 – Thursday, Oct. 24 at 3:30pm in SOS B44
Week 10	M: The Mole W: Molar Mass F: Percent Composition & Formulas	Chapter 7	Due 10/28: Homework #9 Section: Structures & Shapes (WS #7)
Week 11	M: Balancing Reactions W: Balancing Reactions Cont'd F: Types of Reactions	Chapter 8 - 9	Due 11/4: Homework #10 Section: Composition and Balancing (WS #8)

Week 12	M: Precipitation Reactions W: Redox Reactions F: Energy & Reactions	Chapter 9	Due 11/11: Homework #11 Section: Reactions (WS #9) <i>Nov. 15: Last Day to drop with a "W"</i>
Week 13	M: Stoichiometry W: Limiting Reactant / Exam Review F: Limiting Reactant & Yield	Chapter 10	Due 11/18: Homework #12 <i>EXAM 3 – Thursday Nov. 21 at 3:30pm in SOS B44</i>
Week 14	M: Solutions & Solubility W: THANKSGIVING BREAK F: THANKSGIVING BREAK	Chapter 10	Due 11/25: Homework #13
Week 15	M: Concentration & Dilution W: Titration & Colligative Prop. F: Review	Chapter 16	Due 12/6: Homework #14 Section: Solutions (WS #10)
FINAL	<i>FINAL EXAM: Friday, December 13, 11am-1pm in GFS 101</i> <i>This is the only time during which the final exam may be taken. No make-ups. If you cannot take the final during this designated time, you should not take this course.</i>		

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
engemannshc.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call
engemannshc.usc.edu/rsvp

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086
equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421
studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710
studentaffairs.usc.edu/ssa

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101
diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu

Non-emergency assistance or information.