

Southeastern Louisiana University - Dept of Chemistry and Physics (985-549-2159)

Dual Enrollment Chemistry 102 for Fall 2020

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Prerequisites: This course is for 11th and 12th graders with a GPA of at least 2.5, a composite ACT of 19 or greater AND a math ACT subscore of 19 or greater; graduating seniors must also have at least an English ACT subscore of 18 who have prior credit for CHEM101. (Full details are listed in the 2020-21 Dual Enrollment eligibility guidelines).

Course Transferability: It is incumbent upon all students and parents to determine the transferability of Dual Enrollment courses to other institutions. For in-state institutions, Southeastern courses can be cross-referenced using the Statewide Articulation Matrix to determine transferability (<https://regents.la.gov/master-course-articulation>). Out-of-state institutions should be consulted to determine transferability.

Course Requirements:

- A rental textbook will be provided for you: Introductory Chemistry, 5th edition, by Nivaldo Tro. It must be returned in good shape by the end of your grading semester or you will need to purchase it (approx. \$222).
- You must have a scientific calculator with scientific notation, $\sqrt{\quad}$, & log (like TI-30IIX) and bring it to every class and test.
- You will need to enroll in chem101 digital learning (access given by instructor) to obtain access to the online homework assignments which are part of your grade.
- You must login into moodlede.selu.edu and validate this syllabus and the course policies to notify that you have received and read this syllabus.

Homework:

- Homework is found online at chem101 digital learning (www.101edu.co).
You need not complete each homework in one sitting. You will spend class time working on the 7 chapter homeworks; you may need to spend time at home to finish the assignments; you will have a few attempts to answer each homework question correctly. You must complete each homework before the due date.
- At the end of the course, the lowest homework grade will be dropped. The average of the best 6 chapter homework assignments is worth 25% of course grade.

Tests and Final Exam: (also see Testing Policy)

- There are 3 tests and 1 final exam, 100 points each:
Chem 102: **Test 1** – Ch 13-15 **Test 2** – Ch 16-17 **Test 3** – Ch 18-19 **Final:** Ch 13-19

**unless your teacher has chosen to teach the chapters in a different order than the text*

- You will have 50 minutes each for tests, and 120 minutes for the final exam.
- Tests & the final are composed of 20-30 questions (multiple choice or numeric entry). All students will be asked equivalent, but not the same, questions.
- A missed test or final exam must be made up within 2 days (unless prior approval of an extension is granted for extenuating circumstances) or you will receive a zero.
- At the end of the course, the lowest test grade will be dropped. (One missed test score can therefore be dropped)
- The remaining two tests and the final exam are each worth 25% of course grade.

Grading:

Your 2 best tests, your homework average and your final exam scores will be averaged to calculate your grade (each is $\frac{1}{4}$ of your grade).

You will receive 3 credits if you earn an A (>90%), B (>80%), or a C (>70%).

You will receive no college credits if you earn a D (>60%) or an F (<60%).

You can withdraw from the course prior to the deadline, receive a "W" grade and no credit.

Testing Policy

All testing will be done in class, under strict supervision, following guidelines set forth by the Southeastern Louisiana University Chemistry Department. Students are expected to maintain the highest standards of academic integrity. Behavior that violates these standards is not acceptable. Actions that violate our standards of academic integrity include, but are not limited to, the following: use of unauthorized material, use of any website other than MoodleDE.selu.edu, communication with fellow students and/or other individuals during an examination, attempting to benefit from the work of another student, and any similar behavior that defeats the intent of an examination or other class work. Cheating on examinations and plagiarism are considered very serious offenses and shall be grounds for disciplinary action as outlined in Southeastern Louisiana University's current General Catalogue. (http://www.southeastern.edu/resources/policies/policy_detail/acad_integrity.html)

TESTING RULES: Southeastern Louisiana University Chemistry testing guidelines include, but are not limited to, the following:

1. Arrive on time for your test. Each test is only available for a certain pre-determined amount of time.
2. Your facilitator will provide you with scratch paper. No other paper is allowed.
3. ALL belongings, including cell phones and review materials, must be put away during testing, and should not be near your personal testing area.
4. Absolutely no cell phones are allowed during testing. All cell phones must be turned OFF and put away out of sight. If a cell phone is taken out and/or used during a test, it will result in a charge of academic misconduct and a score of ZERO on the test.
5. No IPODS or other music devices may be used during tests. Use of any such device during a test will result in a charge of academic misconduct and a score of ZERO on the test.
6. No website other than www.moodleDE.selu.edu and no other area of Moodle may be accessed during tests. Accessing any such website during a test will result in a charge of academic misconduct and a score of ZERO on the test.
7. You may not write down any information pertaining to test questions to take with you when you leave the classroom after an exam. All scratch paper will be collected before you are allowed to leave. You may not share any test information with anyone who has not taken the test.
8. All questions or issues during tests should be communicated to the High School DE Course Facilitator and the university Instructor of Record
9. If you are believed to have violated academic integrity, the university Instructor of Record will inform you of the violation and consequences (a ZERO on that assignment for first offense) and you will have an opportunity to appeal.

(http://www.southeastern.edu/resources/policies/policy_detail/acad_integrity.html)

Other Policies:

- All communications with the university Instructor of Record must go through your High School DE Course Facilitator to ensure everyone is informed. Sending an email to both is acceptable; also you can discuss issues with your High School DE Course Facilitator and have them contact the university Instructor of Record.
- If you wish to withdraw from this course, it is your responsibility to complete all school procedures for withdrawing from a course. You cannot be denied the right to withdraw from a dual enrollment course by a school facilitator, coordinator or administrator.

- Students with documented disabilities will be granted special accommodations as per their documentation to ensure equal opportunity for all qualified persons. No accommodations will be granted without documentation. Your High School DE Course Facilitator or Coordinator will submit evidence of an IEP or 504 plan with the Office of Disability Services and we will make accommodations accordingly.
- Appeal and Change of Grade: After a final course grade is recorded in the Records and Registration Office, a change of grade must be approved in sequence by the instructor of record (Dr. Ghimire or Little), the instructor's department head, and the academic dean of the College of Science and Technology. In the event of a contested final course grade, a student's written appeal of the grade must be submitted to the instructor within **thirty (30)** calendar days of final grades for the term being due. The grade appeal should also be submitted to Dr. Jeffrey Temple, Assistant Vice President for Academic Programs. For more information about grade appeals, see http://www.southeastern.edu/admin/rec_reg/university_catalogue/index.html

Important dates to remember:

Last day to enroll for fall-only/year-long courses: August , 2020

Last day to DROP fall-only/year-long courses: August , 2020

Last day to WITHDRAW from fall-only courses: October 30, 2020

Last day to enroll for spring-only courses: January , 2021

Last day to DROP spring-only courses: January , 2021

Last day to WITHDRAW from year-long/spring-only courses: March 26, 2021

Disclaimer: This syllabus is subject to change. Any changes will be provided to you. The course description will not change.

Chemistry 102 Learning Goals

Solutions

1. Define solute and solvent; describe the formation of a solution.
2. Identify solutes as electrolytes or nonelectrolytes.
3. Define solubility; distinguish between an unsaturated and a saturated solution. Identify an insoluble salt.
4. Understand and perform calculations involving concentration, including mass percent and molarity.
5. Given the volume and molarity of a solution, calculate the amount of another reactant or product in the reaction.
6. Perform calculations involving dilutions of solutions.

Chemical Equilibrium

1. Describe how temperature, concentration, and catalyst affect the rate of a reaction.
2. Use the concept of reversible reactions to explain chemical equilibrium.
3. Calculate the equilibrium constant for a reversible reaction given the concentrations of reactants and products at equilibrium.
4. Use an equilibrium constant to predict the extent of reaction
5. Use Le Chatlier's principle to describe the changes made in equilibrium concentrations when reaction conditions change.
6. Calculate the solubility product for a saturated solution; use the solubility product to calculate molar ion concentrations.

Acids and Bases

1. Describe and name acids and bases using the Arrhenius and the Bronsted-Lowry concepts.
2. Identify conjugate acid-base pairs for Bronsted-Lowry acids and bases.
3. Write equations for the dissociation of strong and weak acids; identify the extent of reaction.
4. Write the equilibrium expression for a weak acid or weak base.
5. Use the ion product of water to calculate the $[H_3O^+]$ and $[OH^-]$ in an aqueous solution.
6. Calculate pH, $[H_3O^+]$, and $[OH^-]$ of a solution from appropriate data.
7. Write balanced equations for reactions of acids and bases.
8. Calculate the molarity or volume of an acid or base from titration information.
9. Predict whether a salt will form an acidic, basic, or neutral solution.
10. Describe the role of buffers in maintaining the pH of a solution.

Oxidation-Reduction: Transfer of Electrons

1. Identify oxidation, reduction, oxidizing agents, and reducing agents in redox reactions.
2. Assign an oxidation number to all the atoms in a compound.
3. Balance oxidation-reduction equations (including ones in acidic or basic conditions).
4. Write the half-reactions that occur at the anode and cathode of a voltaic cell.
5. Describe the half-cell reactions and the overall reactions that occur in electrolytic cells.
6. Predict whether a reaction will occur spontaneously
7. Write a balanced chemical equation for a spontaneous reaction.

Nuclear Radiation

1. Describe alpha, beta, and gamma radiation.
2. Write nuclear equations for radioactive decay.
3. Describe the detection and measurement of radiation.
4. Perform half-life calculations for radioisotopes.
5. Describe the practical applications of radioisotopes.
6. Describe the processes of nuclear fission and fusion.

Organic Chemistry

1. Differentiate properties and characteristic of organic or inorganic compounds.
2. Classify organic molecules according to their functional groups, including alkanes, alkenes, alkynes, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines and amides.
3. Write the IUPAC and/or common names for the functional groups listed above.
4. Draw structural, condensed and line formulas of the functional groups listed above.
5. Describe the bonding in benzene; name aromatic compounds and write their structural formulas.
6. Classify alcohols as primary, secondary, or tertiary
7. Identify and predict products for selected addition and condensation organic reactions.

Biochemistry

1. Understand the classification schemes for carbohydrates.
2. Describe the monosaccharide units and linkages in disaccharides.
3. Describe structure and properties of lipids.
4. Describe protein functions, and draw the generic structure for amino acids monomers and the peptide linkage.
5. Identify the levels of structure of a protein.
6. Describe the role of an enzyme in an enzyme-catalyzed reaction.
7. Describe the structures of the nucleic acids in DNA and RNA.
8. Describe protein synthesis.