Angelina College
Science and Mathematics
Chemistry 1305 | Introductory Chemistry
General Syllabus

I. BASIC COURSE INFORMATION:

A. Course Description:

Three hours credit. A basic presentation of chemistry. Topics include: matter and energy; the metric system; elements, compounds, and mixtures; the mole concept; stoichiometry; and atomic theory. Three lecture hours each week. This course is designed for non-science majors or as an introductory course for those students who have little or no background in chemistry.

B. Intended Audience:

1. This course designated for non-science majors, or as an introductory course for those students who have little or no background in chemistry.
2. NOTE: This course (CHEM 1305) does ***not*** include a lab component; if you require four credit hours of introductory chemistry for your major, you must also sign up for CHEM 1105 (Introductory Chemistry Lab) separately. In essence, CHEM 1305 + CHEM 1105 = CHEM 1405.
3. NOTE: Do not confuse this course with CHEM 1411, General Chemistry. Both are "freshman" chemistry courses, but CHEM 1411 is designed for science & technology majors. Verify with your advisor that this is the appropriate course for your degree plan.

II. INTENDED STUDENT OUTCOMES:

A. Core Objectives Required for this Course

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

B. Course Learning Outcomes for all Sections

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Identify trends in chemical and physical properties of the elements using the Periodic Table.
4. Describe the bonding in and the shape of simple molecules and ions.
5. Solve stoichiometric problems.
6. Write chemical formulas.
7. Write and balance equations.
8. Use the rules of nomenclature to name chemical compounds.
9. Define the types and characteristics of chemical reactions.
10. Determine the role of energy in physical changes and chemical reactions.
11. Convert units of measure and demonstrate dimensional analysis skills.

III. ASSESSMENT MEASURES

A. Assessments for the Core Objectives:

1. ***Critical Thinking:*** Based on given data, students will predict reaction outcomes; or students assess the fitness of scientific data as a reliable source to draw to a valid conclusion. Assessment will include supplied answers against a key. In particular, the data will take the form of a chemical formula, from which the student will ascertain associated 3-dimensional molecular structure and bond framework. Evidence of critical analysis will be assessed using the AC rubric.
2. ***Communication:*** Formative assessment will employ embedded questions. Effectiveness will be assessed using the AC rubric.
3. ***Empirical and Quantitative Skills:*** Formative assessment will employ embedded questions. Students will perform a variety of chemical calculations, including the quantity of product(s) anticipated from a given amount of reactant (starting material). Empirical and quantitative skills and effectiveness will be assessed using the AC rubric.
4. ***Teamwork:*** Formative assessment will employ embedded questions. Effectiveness will be assessed using the AC rubric.

B. Assessments for Course Learning Outcomes

1. Students will demonstrate their ability to identify and quantify fundamental properties of matter by answering directed lecture questions and/or exam questions.
2. Students will demonstrate their ability to identify matter with respect to the four major classifications; classify compounds according to bonding characteristics, and designate reactions as belonging to appropriate reaction types by answering directed lecture questions and/or exam questions.
3. In light of the periodic chart, students will identify trends in chemical and physical properties (e.g., electronegativity, atomic size) by answering directed lecture questions and/or exam questions.
4. Using the concept of Lewis Dot Structures, students will describe the bonding in, and the shapes of, simple molecules and ions by working in-class exercises, and by answering directed lecture questions and/or exam questions.
5. Students will demonstrate their ability to solve stoichiometric problems ("chemical calculations") by answering directed lecture questions and/or exam questions.
6. Students will demonstrate their ability to write chemical formulas by answering directed lecture answering directed questions and/or exam questions.
7. Students will demonstrate their ability to write and balance chemical equations by responding to lecture prompts and/or answering exam questions.
8. Students will demonstrate their ability to use the rules of nomenclature by responding to lecture prompts and/or answering exam questions, which usually take the form of identifying correct or incorrect chemical names.
9. Students will demonstrate their ability to define the types and characteristics of chemical reactions by answering directed lecture questions and/or exam questions.
10. Students will demonstrate their ability to assess the role of energy in physical changes and chemical reactions by answering directed lecture questions and/or exam questions..
11. Students will demonstrate their ability to convert units of measure, and to apply the problem-solving technique of dimensional analysis, by answering directed lecture questions and/or exam questions.

IV. INSTRUCTIONAL PROCEDURES:

A combination of chemistry demonstrations, molecular models, and supplemental information (both printed and digital) augment lecture presentations. Audio-visuals materials and internet resources are also employed.

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks and Recommended Readings, Materials and Equipment

1. Textbook: “Introductory Chemistry: A Foundation” by Stephen S. Zumdahl (Houghton Mifflin). 8th edition.
2. Access to OWL, an on-line homework module purchased through Cengage, the publisher of the textbook. (Note: the textbooks sold in the AC Bookstore come pre-packaged with OWL.)
3. Access to BlackBoard (provided by AC)
4. Calculator capable of scientific notation
5. For exams: (a) “Scantron” forms and (b) #2 pencil
6. Material necessary to complete assessment Projects.

B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

7. ***Academic Assistance*** – — If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Maria Lopez or Steve Hudman in room 200 of the Student Center. At a postsecondary institution, you must self-identify as a person with a disability; Ms. Lopez and Mr. Hudman will assist you with the necessary information to do so. To report any complaints of discrimination related to disability, you should contact Mr. Steve Hudman, Dean of Student Affairs, in Room 101 of the Student Center. You may also contact Dean Hudman by phone at (936) 633-5292 or by email shudman@angelina.edu.
8. ***Attendance –*** Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences of four (4) cumulative absences ***may*** be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. ***If it is your desire to drop, you should confirm your current status, and drop the course yourself, if indeed you find you are still enrolled. You must be officially dropped from the class or risk receiving an F***. This is official Angelina College Policy.
9. ***Punctuality*** – The instructor reserves the right to refuse admittance due to tardiness. However, if a student arrives late (after roll-call) and is allowed admittance, it is his/her exclusive responsibility to approach the instructor after the class and report his/her attendance. Otherwise, the student's designation of 'absent' will forever stand.
10. ***Electronics During Lecture*** – All cell phones and electronic communication devices should be turned off or set to silent, and stored away. A call should not be made for answered except in case of an emergency. Texting is not allowed in class. Unless otherwise granted permission, the only electronic devices allowed are "notepads," and then only for the express purpose of taking notes.
11. ***Additional Policies Established by the Instructor*** – A
    a. Be prepared to begin class on time and do not prepare to leave before class is over.
    b. No eating or drinking is allowed in class.
    c. Cell phones should be turned off during class time.
    d. Children and other guests are not permitted in the classroom. Children are not allowed to wait in the hall unsupervised. See Student Services for child-care issues.
    e. Students are expected to participate in the instruction through courteous, relevant comments and questions during class. Behavior that interferes with the learning environment will not be tolerated. Conferences outside of class are available by appointment during the instructor’s office hours.

VI. COURSE OUTLINE: Description of the Course Activities including due dates, schedules, and deadlines.

— MONDAY/WEDNESDAY SECTION

CHEMISTRY 1305 LECTURE SCHEDULE

Chemistry 1305.001 (MW) 2:30				Dr. Stephenson
v1				Spring 2018
CLASS	DAY	DATE	CHAPTER	DESCRIPTION
1	W	17-Jan	1, 2	Introduction, course overview, sci process
2	M	22-Jan	2	Measurements, sig. figs.,sci. notation, metric sys
3	W	24-Jan	2	dimensional analysis, temp., density
4	M	29-Jan	3	Matter
5	W	31-Jan	4	Elements, Atoms, Isotopes
6	M	5-Feb	4	Periodic table, Ions
7	W	7-Feb	Ch 1-4	EXAM 1
8	M	12-Feb	5	Nomenclature
9	W	14-Feb	5	Nomenclature continued
10	M	19-Feb	6	Balancing equations
11	W	21-Feb	7	Predicting precipitation Rxns (Dbl displ.; Ionic Eqs)
12	M	26-Feb	7	Rxns in aqueous solution (Acid-Base, REDOX)
13	W	28-Feb	7	Rxns in aqueous solution (REDOX contd, other rxns)
14	M	5-Mar	CH 5-7	EXAM 2
15	W	7-Mar	8	Atomic mass, Mole concept
	M	12-Mar		HOLIDAY
	W	14-Mar		HOLIDAY
16	M	19-Mar	8	Empirical vs. Molecular formulas
17	W	21-Mar	9	Stoichiometry calculations, % Yield
18	M	26-Mar	9	Limiting reactants, Percent composition, Empirical formulas
19	W	28-Mar	15.4-15.7	Molarity & Stoichiometric Calculations
20	M	2-Apr	15.4-15.7	Complete Molarity
21	W	4-Apr	15.4-15.8	Finish chapter; exam review
22	M	9-Apr	CH 8-9,15	EXAM 3
23	W	11-Apr	12	Chemical Bonding & Lewis Structures
24	M	16-Apr	12	Molecular Structures
25	W	18-Apr	10	Energy: basic concepts
26	M	23-Apr	10	Energy: Free Energy, Enthalpy, Entropy
27	W	25-Apr	10	Finish chapter; exam review
28	M	30-Apr	CH 10-12	EXAM 4
29	W	2-May		Review for Final Exam
30	M	7-May	2 PM	FINAL EXAM (Comprehensive)
31				

3-Apr is last day to drop with a "W"

Note: Schedule is subject to change. 180111

— TUESDAY/THURSDAY SECTION —

CHEMISTRY 1305 LECTURE SCHEDULE

Chemistry 1305.002 (TR) 8:00				Dr. Stephenson
v1				Spring 2018
CLASS	DAY	DATE	CHAPTER	DESCRIPTION
1	T	16-Jan	1, 2	Introduction, course overview, sci process
2	R	18-Jan	2	Measurements, sig. figs.,sci. notation, metric sys
3	T	23-Jan	2	dimensional analysis, temp., density
4	R	25-Jan	3	Matter
5	T	30-Jan	4	Elements, Atoms, Isotopes
6	R	1-Feb	4	Periodic table, Ions
7	T	6-Feb	4	Periodic table, Ions (contd). Review (as time allows)
8	R	8-Feb	Ch 1-4	EXAM 1
9	T	13-Feb	5	Nomenclature
10	R	15-Feb	5	Nomenclature continued
11	T	20-Feb	6	Balancing equations
12	R	22-Feb	7	Predicting precipitation Rxns (Dbl displ.; Ionic Eqs)
13	T	27-Feb	7	Rxns in aqueous solution (Acid-Base, REDOX)
14	R	1-Mar	7	Rxns in aqueous solution (REDOX contd, other rxns)
15	T	6-Mar	CH 5-7	EXAM 2
16	R	8-Mar	8	Atomic mass, Mole concept
	T	13-Mar		HOLIDAY
	R	15-Mar		HOLIDAY
17	T	20-Mar	8	Empirical vs. Molecular formulas
18	R	22-Mar	9	Stoichiometry calculations, % Yield
19	T	27-Mar	9	Limiting reactants, Percent composition, Empirical formulas
20	R	29-Mar	15.4-15.7	Molarity & Stoichiometric Calculations
21	T	3-Apr	15.4-15.7	Complete Molarity
22	R	5-Apr	15.4-15.8	Finish chapter; exam review
23	T	10-Apr	CH 8-9,15	EXAM 3
24	R	12-Apr	12	Chemical Bonding & Lewis Structures
25	T	17-Apr	12	Molecular Structures
26	R	19-Apr	10	Energy: basic concepts
27	T	24-Apr	10	Energy: Free Energy, Enthalpy, Entropy
28	R	26-Apr	10	Finish chapter; exam review
29	T	1-May	CH 10-12	EXAM 4
30	R	3-May		Review for Final Exam
31	T	8-May		FINAL EXAM (Comprehensive)

3-Apr is last day to drop with a "W"

Note: Schedule is subject to change. 180111

VII. EVALUATION AND GRADING:

A. Grading Criteria

COURSE AVERAGE	COURSE GRADE
90–100	A
80–89	B
70–79	C
60–69	D
Below 60	F

B. Course score will be determined according to the following percentages:

1. 65% of the course score is taken from Exams 1,2,3,4,and 5; 20% from the Final Exam; 10% from online homework, and 5% from assessment projects.
2. The components are weighted according to the equation:

Course Grade = 0.20 (Final Exam Score) + 0.65 (average of all midterm exams)
+ 0.15 (OWL online homework [and Assessment project, if applicable])

C. OWL (Online Homework Component)

1. OWL is *required*. If you purchased a book from the AC bookstore, OWL is included. If not, then you must purchase OWL directly from the vendor (Cengage).

D. Assessment Project

1. This will be a group project, designed to integrate into the general collegiate 'assessment' process.
2. It will assess all Student Outcomes discussed in SECTION III, above.
3. Groups will be assigned approximately mid-semester.
4. Your score will be weighted by an individual 'teamwork' factor. For example, if the Group Project scores a 90% but you participation is only 60%, then your individual score would only be 54% (90% x 0.60 = 54%).

E. Make-up Exams

1. There are NO make-up exams; however, an exception ***may*** be approved if requested ***prior*** to test date.
2. A request for a make-up must be made in person, and if approved (at the discretion of the instructor), it must be confirmed via email sent from the student's Angelina College email address to the instructor's Angelina College email address acknowledging the approval.
3. *If* the request to take a make-up exam is approved, the make-up exam must nevertheless be taken ***within six days*** of the original test date, after which permission is automatically rescinded.

The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.