Angelina College
Science and Mathematics
Chemistry 1105 | Introductory Chemistry | Internet
General Syllabus

I. BASIC COURSE INFORMATION:

A. Course Description:

1. Basic laboratory experiments supporting theoretical principles presented in CHEM 1305; introduction of the scientific method, experimental design, data collection and analysis. Designed for non-science students.
2. CHEM 1105 is Introductory Chemistry Laboratory. Introductory Chemistry CHEM 1305 is co-requisite. CHEM 1105 plus CHEM 1305, completed simultaneously, are equivalent to CHEM 1405.
3. Cannot be substituted for CHEM 1411 (General Chemistry)

B. Intended Audience:

1. Laboratory component of CHEM 1305, Introductory Chemistry for Non-science Majors (Note: in essence CHEM 1105 + CHEM 1305 = CHEM 1405)
2. Designed for non-science majors or as an introductory course for those students who have little or no background.

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

5. Understand and demonstrate safe laboratory practices
6. Identify basic laboratory equipment
7. Read NFPA labels and understand the hazard of chemicals used
8. Record data, and perform mathematical operations, to the correct level of precision.
9. Relate physical observations and measurements to theoretical principles.
10. Interpret laboratory results and experimental data, and reach logical conclusions.
11. Observe and interpret precipitation reactions
12. Perform a gravity filtration to separate liquids from solids
13. Draw Lewis dot structures and construct molecular models

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 understand and demonstrate safe laboratory practices* by answering directed questions during the laboratory and/or exam questions
2. Students will demonstrate their ability *to identify basic laboratory equipment* via exam questions.
3. Students will demonstrate their ability *to read NFPA labels and understand the hazard of chemicals used* by answering directed questions during the laboratory and/or exam questions
4. Students will demonstrate their ability *to record data to the correct level of precision and perform mathematical operations* by completing report forms and answering post-lab questions
5. Students will demonstrate their ability *to relate physical observations and measurements to theoretical principles* by completing report forms, answering post-lab questions, and answering exam questions
6. Students will demonstrate their ability *to interpret laboratory results and experimental data, and reach logical conclusions* by completing report forms, answering post-lab questions
7. Students will demonstrate their ability *to observe and interpret precipitation reactions* by completing report forms, answering post-lab questions, and/or exam questions
8. Students will demonstrate their ability *to perform a gravity filtration to separate liquids from solids* by completing report forms, answering post-lab questions, and/or exam questions
9. Students will demonstrate their ability *to draw Lewis dot structures and construct molecular models* by accurately building molecular models of select compounds during the laboratory session, completing report forms, 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. Laboratory Text: *Experiments in Introductory Chemistry* 1st ed., by Kirk Stephenson (Rhaeadr Publishing)
2. Access to BlackBoard (provided by AC)
3. Calculator capable of scientific notation.
4. Supplies for exam: (a) #2 pencil, (b) two Scantron forms (one for Experiment 1 quiz, and one for laboratory final exam)

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

1. **Attendance –** Attendance is required as per Angelina College Policy and will be recorded each lab. Any student with two (2) consecutive absences or three (3) 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.
2. **Participation** – No "Report" (see below for definition of "Report") may be submitted for an experiment which the student did not fully attend, participate, and complete. Any data shared between lab partners must have been jointly acquired during the required laboratory period.
3. ***Punctuality*** – Students should plan to arrive at least a few minutes early to turn in assignments from the previous lab. 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.
4. ***Additional Policies Established by the Instructor*** – As determined by instructor.

C. Academic Assistance – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

1. ***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..
2. ***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.
3. Additional Policies Established by the Instructor.
   - There will be NO make-up labs; however...
   - One individual experiment grade will be dropped.
   - Missed lab counts as a "zero"
   - What about attending a different lab section, rather than miss a lab?
     - With prior permission, you may attend a different lab section. For example, if you know you are going to have to miss your Thursday lab, you may request that be allowed to attend Monday's lab.
     - If verbal permission is granted, you must confirm by sending the instructor an eMail confirming your intent. The 'deal' is not finalized until you have sent the confirmation eMail**.**

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

Course outlines provided at end of this document, in the form of spreadsheets. See pages 4–6.

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. Individual experiment scores are derived:

- 30% - Prelab Quiz
- 70% - Report (*Report = Report Form* plus *Post-Lab Questions*)

Individual Experiment Score = 0.30 (Prelab Quiz) + 0.70 (Report Form & Postlab Questions)

C. The course laboratory grade is derived:

- 80% Individual experiment scores
- 20% Final Exam

Course Grade = 0.80 (Average of Individual Experiments) + 0.20 (Final Exam)

CHEMISTRY 1105 EXPERIMENTS SCHEDULE — MONDAY

CHEM 1105.001 (Monday) 11:00				DR. STEPHENSON
v1				SPRING 2018
SESSION	DATE	QUIZ	LAB MANUAL EXP #	EXPERIMENT
1	15-Jan			HOLIDAY
2	22-Jan		Experiment 1	Safety rules; Equipment; Check in; Syllabus review
3	29-Jan	A	Experiment 2	Mass Measurements (+ Safety & Equip. Quizzes)
4	5-Feb	B	Experiment 3	Volumetric glassware
5	12-Feb	C	Experiment 4	Density determinations
6	19-Feb	D	Experiment 6	Simple distillation
7	26-Feb	E	Experiment 5	Precipitation and Filtration (Recrystallization)
8	5-Mar	F	Experiment 8	Precipitation reactions
9	12-Mar			SPRING BREAK
10	19-Mar	G	Experiment 10	Acid-base reactions
11	26-Mar	H	Experiment 11	Percent Yield & Composition (MgO)
12	2-Apr	I	Experiment 13	Calorimetry (Venier 1)
13	9-Apr	J	Experiment 14	Lewis structures and molecular shapes
14	16-Apr	K	Experiment 12	Chemiluminescence (Luminol); Review for final
15	23-Apr			FINAL EXAM

Subject to change/correction 180110

CHEMISTRY 1105 EXPERIMENTS SCHEDULE — MONDAY

CHEM 1105.081 (Monday) 5:30				DR. STEPHENSON
v1				SPRING 2018
SESSION	DATE	QUIZ	LAB MANUAL EXP #	EXPERIMENT
1	15-Jan			HOLIDAY
2	22-Jan		Experiment 1	Safety rules; Equipment; Check in; Syllabus review
3	29-Jan	A	Experiment 2	Mass Measurements (+ Safety & Equip. Quizzes)
4	5-Feb	B	Experiment 3	Volumetric glassware
5	12-Feb	C	Experiment 4	Density determinations
6	19-Feb	D	Experiment 6	Simple distillation
7	26-Feb	E	Experiment 5	Precipitation and Filtration (Recrystallization)
8	5-Mar	F	Experiment 8	Precipitation reactions
9	12-Mar			SPRING BREAK
10	19-Mar	G	Experiment 10	Acid-base reactions
11	26-Mar	H	Experiment 11	Percent Yield & Composition (MgO)
12	2-Apr	I	Experiment 13	Calorimetry (Vernier 1)
13	9-Apr	J	Experiment 14	Lewis structures and molecular shapes
14	16-Apr	K	Experiment 12	Chemiluminescence (Luminol); Review for final
15	23-Apr			FINAL EXAM

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CHEMISTRY 1105 EXPERIMENTS SCHEDULE — THURSDAY

CHEM 1105.002 (Thursday) 9:45				DR. STEPHENSON
v1				SPRING 2018
SESSION	DATE	QUIZ	LAB MANUAL EXP #	EXPERIMENT
1	18-Jan			HOLIDAY
2	25-Jan		Experiment 1	Safety rules; Equipment; Check in; Syllabus review
3	1-Feb	A	Experiment 2	Mass Measurements (+ Safety & Equip. Quizzes)
4	8-Feb	B	Experiment 3	Volumetric glassware
5	15-Feb	C	Experiment 4	Density determinations
6	22-Feb	D	Experiment 6	Simple distillation
7	1-Mar	E	Experiment 5	Precipitation and Filtration (Recrystallization)
8	8-Mar	F	Experiment 8	Precipitation reactions
9	15-Mar			SPRING BREAK
10	22-Mar	G	Experiment 10	Acid-base reactions
11	29-Mar	H	Experiment 11	Percent Yield & Composition (MgO)
12	5-Apr	I	Experiment 13	Calorimetry (Venier 1)
13	12-Apr	J	Experiment 14	Lewis structures and molecular shapes
14	19-Apr	K	Experiment 12	Chemiluminescence (Luminol); Review for final
15	26-Apr			FINAL EXAM

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