Class Syllabus  
Spring 2019  
CHE 112L  
Introductory Chemistry I Laboratory  
Sections 020 & 021

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Department: Chemistry and Biochemistry  
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Phone: (936) 468-2243  
Office: 112 Math Building  
Office Hours: T (Recitation CHE 332) 12.30 pm-1.20 pm, W 11 am-12.30 pm, R 10.00 am-12.10 pm, F 11 am-12.30 pm  
Lab time and place: M, 1:00 – 2:50 p.m., Room M 132/C 209/C 210.

Text and Other Materials:  
- Lab handouts will be posted on D2L. You are not required to buy any book for this class.  
- A scientific calculator.  
- Pencil, eraser and ruler for graphing

Course Requirements:  
The course evaluation consists of weekly experiments or dry-labs, quizzes, a mid-term and a final exam. Attendance is mandatory. The quizzes will cover materials from previous lab and current pre-lab. Experiment Report sheets are due the day that each laboratory experiment is performed. No data sheets will be accepted after the date the actual experiment was performed. Grade of “0” will be given for any experiment for which a data sheet is not submitted on the actual experiment date.

Method of Evaluation:  
The grade is a percent of a total point composed of labs, quizzes and two exams. The grade composition is as follows:

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>9 Labs</td>
<td>100 points</td>
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<tr>
<td>6 Quizzes</td>
<td>50 points</td>
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<tr>
<td>Exams (1 Midterm &amp; 1 Final Exam)</td>
<td>100 points</td>
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<tr>
<td>TOTAL</td>
<td>250 points</td>
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Grading scale as a % - A= 100 – 90, B= 89 – 80, C= 79 – 70; D= 69 – 60; F= 59 and below  

[A ≥ 225; B ≥ 200; C ≥ 175; D ≥ 150; F< 150]

Course calendar  
Laboratory quizzes (50 points)  
- Quizzes will be given every week; each laboratory quiz is worth **10 points**.  
- Anyone coming in late (after the quizzes have been taken up) will not be allowed to take the quiz. The grade will be a **ZERO** for that quiz.  
- The laboratory quiz will cover the laboratory from the **previous week** as well as the pre-lab assignment for that day.
Experiments/Assignments (100 points)
- Each report sheet for the experiment or the assignment is worth 10 points (except organic nomenclature labs, 30 pts).
- The report sheets will be turned in at the end of the laboratory period, unless otherwise stated by the instructor.
- Any assignment turned in at a later time will not be graded.

Mid-term and Final Exams (100 points)
- A midterm exam will be given March 11 during the laboratory period. It will cover material from the first week of the semester through Lab #5.
- The final exam will be given May 6 during the laboratory period. It will cover material from Labs #6-9
- The mid-term and final exams are worth 50 points each.

Make-up Policy: There will be no make-up quizzes or labs since the lowest quiz and lab grades will be dropped. An absence will constitute the lowest grade.

Attendance Policy:
- Attendance of class is mandatory. One excused absence is allowed. Any other absence will result in a zero for the lab.
- Three or more absences will result in an F for the semester.

Academic Honesty Policy (A-9.1):
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Students with Disabilities:
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Classroom Behavior Policy:
Acceptable Student Behavior: Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.
Come to lab prepared (spend at least **ONE HOUR** reading over *entire* lab before lab period **AND** reviewing the previous week’s lab) and on time.

- Bring a **NON-programmable**, scientific calculator. Cell phones and programmable calculators may **NOT** be used on quizzes.
- Turn off and put away cell phones; **NO** texting during lab.
- Come dressed as described in the safety rules that will be given: (Clothes to the ankles, no mid-drift shirts, close-toe shoes. Shoes **MUST** completely cover feet. Anyone not dressed appropriately for **lab will be sent home**.)
- Follow **all** safety rules and good laboratory practices at all time:
  - Wear safety glasses/goggles when **anyone** in the lab is working on an experiment.
  - One warning concerning safety glasses/goggles will be given. A person will be sent home for a second offense and be will earn a zero that may **NOT** be dropped.
  - **NO** horseplay in laboratory
  - Be courteous and respectful of other students, laboratory assistants, and stockroom personnel.
  - Learn your section number and your laboratory assistant's name.
  - Work with assigned lab partner unless otherwise instructed by the lab assistant.
  - Students are responsible for any answer they report on a lab, assignment, or quiz. Laboratory teaching assistants are students and sometimes may make an error or misunderstand a question. You can **NOT** claim the lab assistant told you the wrong answer and get points back.
  - Significant figures are required on **all** answers given in lab on laboratory report sheets, assignments, quizzes, and exams.
  - No make up quizzes will be given if a student comes in late and misses the quiz.
  - Missing a pre-lab lecture will result in a 10% deduction from the lab for and a zero will be recorded for the quiz. Absences may be assigned to anyone that disrupts class, sleeps in class, or consistently comes in late or leaves early. Any assigned absence will result in a zero for the day which can **NOT** be dropped.
<table>
<thead>
<tr>
<th>Date</th>
<th>Lab Exercise/Assignment/Activity</th>
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<tbody>
<tr>
<td>1/21-1/27</td>
<td>No Lab Meeting</td>
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<tr>
<td></td>
<td>Check D2L for Safety Quiz</td>
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<td>Read the safety rules posted on D2L. Watch the following Safety Video by the American Chemical Society. Take notes on the video, study the notes, and take quiz on D2L. The link to the safety video is : <a href="https://www.youtube.com/watch?v=MARP5Ti33II">https://www.youtube.com/watch?v=MARP5Ti33II</a></td>
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<tr>
<td>1/28</td>
<td>Check into Laboratory Drawers</td>
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<tr>
<td>2/4</td>
<td>Lab 1: Separation of a mixture</td>
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<td>2/11</td>
<td>Lab 2: Chromatography of M&amp;M; Quiz 2 (covers lab 1 and lab 2)</td>
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<tr>
<td>2/18</td>
<td>Lab 3: Chemical Reactions and Calculations</td>
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<td>2/25</td>
<td>Lab 4: Determination of Soil pH,</td>
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<td>3/4</td>
<td>Intro to titration and Review for mid-term. Quiz 3 (covers lab 3 and lab 4)</td>
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<tr>
<td>3/11</td>
<td>Midterm Exam (50 pts) – covers everything through February 20</td>
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<tr>
<td>3/18</td>
<td>SPRING BREAK NO LAB MEETING</td>
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<td>3/25</td>
<td>Lab 5: Organic Nomenclature Lab week 1</td>
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<tr>
<td>4/1</td>
<td>Lab 6: Organic Nomenclature Lab week 1 Quiz 4 (covers Lab 5)</td>
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<td>4/8</td>
<td>Lab 7: Organic Nomenclature Lab week 3</td>
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<td>4/15</td>
<td>Lab 8: Aspirin Synthesis. Quiz 5 ( covers lab 6 and lab 7)</td>
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<td>4/22</td>
<td>Completion of Aspirin synthesis, Lab 9: Soap Preparation,</td>
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<tr>
<td>4/29</td>
<td>Lab 9: Completion of Soap Preparation Lab; Check out of drawers, Quiz 6 ( covers lab 8 and lab 9)</td>
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<tr>
<td>May 6</td>
<td>Laboratory Final (50 pts) – covers everything through April 24</td>
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Note: This syllabus is subject to change at the Instructor’s discretion.
Dr. Matibur Zamadar
January 17, 2019

CORE OBJECTIVES AND RESOURCES

Core Objective 1: Critical Thinking: to include creative thinking, innovation, inquiry and analysis, evaluation and synthesis of information.

Definition of **CRITICAL THINKING**: disciplined thinking that is clear, rational, open-minded, and informed by evidence.

Critical thinking involves the use of a group of interconnected skills. The skills needed can be broken down into six steps.

Six Steps of CRITICAL THINKING

1. **Knowledge** means a student must have basic knowledge about the subject.

2. **Comprehension** requires understanding of the subject. Students that comprehend the new knowledge are able to relate the new knowledge to what they already know. Comprehending goes beyond simply parroting material back.

3. **Application** requires both knowledge and comprehension. Students must be able to carry out a task or apply their knowledge and comprehension to an assigned task.

4. **Analysis** involves breaking the knowledge down into smaller parts so it become clear how the smaller parts are related to other ideas.

5. **Synthesis** involves the ability to put together the parts you analyzed with other information to create something original.

6. **Evaluation** occurs once we have understood and analyzed what is said or written and the reasons offered to support it. Then we can appraise this information in order to decide whether you can give or withhold belief, and whether or not to take a particular action.

Adapted from: [http://www.mhhe.com/socsicence/philosophy/reichenbach/m1_chap02studyguide.html](http://www.mhhe.com/socsicence/philosophy/reichenbach/m1_chap02studyguide.html) (accessed May 23, 2013)

**Core Objective 2:** Communication Skills: to include effective development, interpretation and expression of ideas through written, oral, and visual communication.

COMMUNICATION SKILLS in the sciences

For an excellent resource in scientific communication from a highly reputable source see the information provided on the Nature website link shown below.

[http://www.nature.com/scitable/topic/scientific-communication-14121566](http://www.nature.com/scitable/topic/scientific-communication-14121566) (accessed May 31, 2013)

Three especially informative links within the link shown above are:

- Effective Communication
- Effective Writing
Core Object 3: Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

EMPIRICAL AND QUANTITATIVE SKILLS

Chemists rely on observations to explain the nature of the substances they study. There are two types of observations exist: qualitative and quantitative. A qualitative observation is an observation made with the senses and is usually expressed using words instead of numbers. Qualitative observations about a person sick in the hospital might include that the person is breathing rapidly, has a high temperature, and is very thin.

A quantitative observation is an observation that requires a numerical measurement and describes something in terms of "how much". The quantitative observation that a person has a temperature of 103.6 °F is much more useful information than just knowing that the person has a fever. Quantitative observations are preferred by scientists. Often quantitative data is acquired in lab.

One or more measurement is always a part of any quantitative observation. A measurement determines the dimensions, capacity, quantity, or extent of something. The most common types of measurements made in chemical laboratories are those of mass, volume, length, temperature, pressure, and concentration. Measurements always consist of two parts: a number, which tells the amount of the quantity measured, and a unit, which tells the nature or kind of quantity measured. A measured number without a unit is meaningless.

Once quantitative data is obtained, chemists then mathematically manipulate and analyze data.

Adapted from saplinglearning.com; accessed May 31, 2013

Core Objective 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.

Definition of TEAMWORK: work done by several associates with each doing a part but all subordinating personal prominence to the efficiency of the whole.


TEAMWORK General Rules

Each team member needs:

- all ideas evaluated critically;
- treat others in the group with respect
- everyone needs to pull their weight, meet deadlines, and contribute equally;
- actions need to be followed through;
• reporting needs to be accurate and comprehensive;
• problems with under-performing team members need to be discussed openly and resolved quickly; and
• peer assessment should be given fairly