Class Syllabus
Spring 2019
CHE 111L-500
Introductory Chemistry I Laboratory

<table>
<thead>
<tr>
<th>Instructor’s Name</th>
<th>Dr. Matibur Zamadar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Chemistry &amp; Biochemistry</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:zamadarmr@sfasu.edu">zamadarmr@sfasu.edu</a></td>
</tr>
<tr>
<td>Phone</td>
<td>936-468-2243</td>
</tr>
<tr>
<td>Office</td>
<td>Math 112</td>
</tr>
<tr>
<td>Office Hours</td>
<td>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</td>
</tr>
</tbody>
</table>

TEXT AND OTHER MATERIALS:

No textbook required.

This lab course requires LabPaq kit. You must purchase LabPaq (lab kit) order it from – www.holscience.com. Follow the steps below to order your lab kit online.

**Student enrollment link is:**

https://myhol.holscience.com/enroll/nrpc-frft-drwr-tnzb

**Here are the kit ordering instructions for students:**

1. Go to holscience.com
2. Click on “Student! Click here to order your LabPaq!”
3. Click on the green “YES”
4. Enter login info
   - Username: C000732
   - Password: labpaq
5. Order kit: LP-3118-CK-01
6. Follow the prompts to complete your order. Note: if you purchase the kit from the company’s website, it may take up to 5 business days to process your order, and more days for shipping. Therefore, please order it early.

**You need:**

- A scientific calculator.
- Pencil, eraser and ruler for graphing for this course.

**Course Description:** Introductory laboratory experiments.

**Number of Credit Hours:** 1 semester hour – 2 hours lab per week

**Course Prerequisites and Co-requisites:** Co-requisite: CHE 111. Lab fee required.

**Program Learning Outcomes:** There are no specific program learning outcomes for this major addressed in this course. This course is a general education core curriculum course and a service course.

**Course Objective:** To provide students with an explanation of the basic principles of chemistry as illustrated through laboratory experiments and to apply these principles to laboratory work involving critical thinking.
**Student Learning Outcomes:** The student is expected to recognize and apply the following concepts to problem solving in a laboratory setting.

- Units of measure and significant figures, unit conversion, density and definitions of matter.
- Basics of atomic theory applied to the atom, basics of the periodic table, correct use of terms.
- Writing correct formulas of compounds and inorganic nomenclature as well as Lewis structure and VSEPR theory.
- Determination of mass calculations in chemical formulas and chemical reactions, writing balanced chemical reactions
- Principles of the gaseous state, gas laws (Boyles, Charles, Gay-Lussac, Ideal, Dalton’s) as well as intermolecular forces in liquids and properties of solutions.
- Principles of acid/base theories, pH, buffers, acid-base indicators, and titration

**Outline of Topics (approximate course time):**

**Safety and Significant Figures (Entire Lab)**
- Density (2 lab days)
- Beer’s Law/Concentration and Dilution (1 lab day)
- Chemical Reactions (1 lab day)
- Titration of Antacid (3 lab days)
- Solutions, Concentration, Buffers, pH (1 lab day)

**General Education Core Curriculum**

- This course has been selected to be part of Stephen F. Austin State University’s core curriculum. The Texas Higher Education Coordinating Board has identified six objectives for all core courses: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives.

- **Introductory Chemistry Lab** is a general education core curriculum course and fulfills the teamwork general education core curriculum requirement. Another, “shell” course has been created to collect student artifacts to meet this state requirement. You will see this course on your D2L list.
- During this semester, you will receive an assignment that fulfills both the requirements of this course and the needs of Stephen F. Austin State University’s Core Curriculum Assessment Plan with the Texas Higher Education Coordinating Board.
- When you complete this one assignment, you need to upload the assignment to both the **Introductory Chemistry Lab** dropout and the **Teamwork** dropout.
- Please note that this only applies to the specific assignment listed in the matrix below. All other assignments should be submitted according to regular class operations.
- If you have any questions, please see your instructor or contact the University Assessment Specialist at (936) 468-1267 or jstringfield@sfasu.edu.
- The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to the D2L **Teamwork** dropout this semester, and the date the assignment(s) should be uploaded to the D2L **Teamwork** dropout. Not every assignment will be submitted for core assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in the D2L **Teamwork** dropout.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>Team work rubrics</td>
<td>Tuesday, Apr. 24 at beginning of lab 12:30 p.m.</td>
</tr>
</tbody>
</table>
COURSE REQUIREMENTS AND DESCRIPTION:
The course evaluation consists of weekly experiments or dry-labs, pre-labs, quizzes, a mid-term and a final exam. Attendance is mandatory. The quizzes will cover materials from previous lab and current pre-lab. Laboratory Report Sheets are due at the end of each laboratory unless otherwise stated by the Instructor. A grade of “0” will be given if Report Sheets are not submitted when due.

METHOD OF EVALUATION:
The grade is a percent of a total point composed of labs, Pre-labs/quizzes and two exams. The grade composition is as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>8 Lab reports</td>
<td>200</td>
</tr>
<tr>
<td>Exploration, experimentation and evaluation questions for 8 labs</td>
<td>100</td>
</tr>
<tr>
<td>Exams (1 Midterm &amp; 1 Final Exam)</td>
<td>100</td>
</tr>
<tr>
<td>Final Reflection Paper (20 bonus points will be added to your total 400 points)</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>400</td>
</tr>
</tbody>
</table>

Grading scale as a % - A= 100 – 90, B= 89 – 80, C= 79 – 70; D= 69 – 60; F= 59 and below

[A ≥ 356; B ≥ 316; C ≥ 276; D ≥ 236; F < 236]

Exploration, experimentation and evaluation questions (100 points)

- In each lab experiment, student must need to complete Exploration, experimentation and evaluation questions on holscience.com. At the end of the semester students grades will be calculated to 100 points by using following equation.
- Student grades for questions = (total student’s questions grades for 8 labs/total questions grades for 8 labs)*100
- Any assignment turned in at a later time will earn a grade of “0”. However, any make-up assignments may be allowed at the Instructor’s discretion.

Experiments or Dry-labs (200 points)

- The lab report sheets will be filled out on holscience.com at the end of the laboratory week period.
- Two lowest experiments will be dropped, and the best 6 experimental grades will be kept. At the end of the semester students grades will be calculated to 200 points by using following equation.
- Student grades for lab report’s grades = (total labs grades for 8 labs/total lab grades for 8 labs)*200
- Any assignment turned in at a later time will earn a grade of “0”. However, any make-up assignments may be allowed at the Instructor’s discretion.

Mid-term and Final Exams (100 points):

- There will be a midterm and final, multiple-choice Exams on the materials to our lab handouts and videos administered via D2L. Each exam will have 25 questions and will be worth 50 points each. Please check the dates and exam availability in course schedule. Students must have a working computer and internet access and need to log in promptly for taking exam. For any technical help, please call the D2L help line at 936-468-1919. Please remember they are available for assistance from Monday to Friday from 8:00 to 5:00 pm only.
Missed Exams (Lab report or Quizzes):

- Technological difficulties, lack of internet or computer access, failing to check D2L reminders and announcements, inability to access or use D2L, misremembering or mishearing exam deadlines will NOT be considered as valid excuses for missing an exam. Make-up exams are very rarely given, and require proper documentation (e.g., note of hospitalization) before the exam deadline has passed (in very rare cases, notification within 24 hrs of the missed exam may be accepted). It is up to the instructor to determine whether the documentation warrants a make-up exam. If you forget to take an exam, oversleep, or do not have a documented “excuse” for missing an exam, you need to schedule an appointment with me to discuss the matter and your ability to pass the course. In the absence of proper documentation, IF a make-up exam is given (not guaranteed & rarely offered), 30-50% will be deducted from the exam grade. For a proven, excused absence for an exam during the semester, a comprehensive make up exam will be given.
- There will be no make-up quizzes or labs. Make-up assignments may be allowed at the Instructor’s discretion.

**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/.

**General Education Core Curriculum**

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- Assessment of these objectives at SFA will be based on student work from all core curriculum courses. This student work will be collected in D2L. The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded this semester.

<table>
<thead>
<tr>
<th>Core Objective</th>
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<th>Course Assignment Title</th>
<th>Date Due in LiveText</th>
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<tr>
<td>Teamwork</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>Team work rubrics</td>
<td>Tuesday, Nov. 28 at the beginning of lab.</td>
</tr>
</tbody>
</table>
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 (accessed May 31, 2013)

Three especially informative links within the link shown above are:

- Effective Communication
- Effective Writing
- Audience/Purpose

Scientific communication traditionally includes writing in third person, past tense, passive voice. In formal, scientific writing slang terms and contractions are avoided.

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

CHE 111 Teamwork Self-Reflection Paper

Since the beginning of titration experiments, a team of two students assigned by instructor will be formed. Every member of the team will share data showing all the steps in the calculations through discussion board on D2L. Students in each team will review each other data and calculations that includes the methods of reaching right answers and the correct number of significant figures. Each member is expected to offer helps and constructive comments to each other. Each team (TWO students work together) will write a single report (maximum two pages) on “what antacids they choose, generic or name-brand?” and submit to the discussion board on D2L for peer-review. Students in different team will peer review the paper and offer helps one another to finalize the paper for submission.

Specific Topics for the Paper

Each students should reflect the following specifics for writing the paper.

A. Introductions (one paragraph)
B. Results (Tables, graphs, figures)
C. Discussions
D. Teamwork contributions
E. Conclusions (use data to support conclusion)

For writing Teamwork contribution, students will reflect on following points.

i. Did each member actually perform the experiment and shared their data and calculations with their team?
ii. Did each member actually put their efforts to facilitate the contributions of team member by providing constructive comments on teammate’s work?
iii. Did each member submit or peer-review their works in a timely fashion?
iv. Did each team member respond to conflicts/problems in the team in an appropriate manner?

Format of Paper
- The first and last names of all team members must be provided.
- Use 12 point New Times Roman as the font; all the margins should be 1”.
- The paper must be 1.5 spaced; the paper must not exceed 2 pages.
- Formal writing is expected. Correct grammar, spelling, and punctuation are required.

Due date:
- The reflective paper is due at the beginning of lab on April 15. Note: This assignment is worth 20 points.

Note: This syllabus is subject to change at the Instructor’s discretion.

Dr. Matibur Zamadar
January 15, 2019

Class Schedule
# Timeline

**CHE 111 Lab**

*(All the due date times on the timeline are based on Central Standard Time)*

<table>
<thead>
<tr>
<th>Unit</th>
<th>Date</th>
<th>Topics/Content</th>
<th>Readings from CHE 111 lecture textbook</th>
<th>Activities &amp; Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 22nd -25th</td>
<td>Getting Started and Lab safety</td>
<td></td>
<td>Complete activities on holscience.com</td>
</tr>
<tr>
<td>1</td>
<td>Jan 28th –Feb 1st</td>
<td>Getting Started and Lab safety</td>
<td></td>
<td>Complete activities on holscience.com</td>
</tr>
<tr>
<td>2</td>
<td>Feb 4th-Feb 8th</td>
<td>Lab 1: Laboratory Techniques and Measures</td>
<td>Chapter 2</td>
<td>Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab report 1 (on holscience.com) Due date: Feb 11th, 4.00-6.00 PM</td>
</tr>
<tr>
<td>3</td>
<td>Feb 11th-Feb 15th</td>
<td>Lab 2: Naming of Ionic Compound and Molecular Compounds</td>
<td>Chapter 5</td>
<td>Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab report 2 (on holscience.com) Due date: Feb 18th, 4.00-6.00 PM</td>
</tr>
<tr>
<td>Unit</td>
<td>Date</td>
<td>Topics/Content</td>
<td>Readings from book</td>
<td>Activities &amp; Assignments</td>
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<tr>
<td>4</td>
<td>Feb 18&lt;sup&gt;th&lt;/sup&gt;–Feb 22&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Lab 3: Mass Conversions to moles and atoms</td>
<td>Chapter 6</td>
<td>Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab report 3 (on holscience.com) Due date: Feb 25&lt;sup&gt;th&lt;/sup&gt;, 4.00-6.00 PM</td>
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<tr>
<td>5</td>
<td>Feb 25&lt;sup&gt;th&lt;/sup&gt;-March 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Lab 4: Chemical Reactions</td>
<td>Chapter 7</td>
<td>Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab 4 report (on holscience.com) Due date: March 4&lt;sup&gt;th&lt;/sup&gt;, 4.00-6.00 PM</td>
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<tr>
<td></td>
<td>March 4&lt;sup&gt;th&lt;/sup&gt;–March 8&lt;sup&gt;th&lt;/sup&gt;</td>
<td>No Lab (study for Midterm)</td>
<td></td>
<td>Midterm Due date: March 11&lt;sup&gt;th&lt;/sup&gt;, from 5:00-5:50 pm (CST) on D2L</td>
</tr>
<tr>
<td>Unit</td>
<td>Date</td>
<td>Topics/Content</td>
<td>Readings from book</td>
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</tbody>
</table>
| 6    | March 11<sup>th</sup>-March 15<sup>th</sup> | Lab 5: Limiting Reactants   | Chapter 8          | Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab 5 report (on holscience.com)  
Due date: March 25<sup>th</sup>, 4.00-6.00 PM |
|      | March 18<sup>th</sup>-March 22<sup>nd</sup> | No Lab                       |                    |                          |
|      |                     | Spring Break                 |                    |                          |
| 7    | March 25<sup>th</sup>–March 29<sup>th</sup> | Lab 6: Titration of Acetic Acid for Vinegar | Chapter 14 | Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab 6 report (on holscience.com)  
Due date: April 1<sup>st</sup>, 4.00-6.00 PM |
<table>
<thead>
<tr>
<th>Unit</th>
<th>Date</th>
<th>Topics/Content</th>
<th>Readings from book</th>
<th>Activities &amp; Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>April 1st –April 5th</td>
<td>Lab 7: Antacid Analysis and Titration</td>
<td>Chapter 14</td>
<td>Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab 7 report (on holscience.com) Due date: April 8th, 4.00-6.00 PM</td>
</tr>
<tr>
<td>9</td>
<td>April 8th- April 12th</td>
<td>Lab 8: Using Buffers</td>
<td>Chapter 14</td>
<td>Complete pre-lab and post lab activities (exploration, experimentations, and evaluations) and Lab 8 report (on holscience.com) Due date: April 15th, 4.00-6.00 PM</td>
</tr>
<tr>
<td></td>
<td>April 15th –April 19th</td>
<td>No Lab</td>
<td></td>
<td>Review for Final Final reflective paper Due date: April 22nd, 4:00-6:00 pm (CST) on D2L</td>
</tr>
<tr>
<td>Unit</td>
<td>Date</td>
<td>Topics/Content</td>
<td>Readings from book</td>
<td>Activities &amp; Assignments</td>
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<tr>
<td>10</td>
<td>April 29&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Final</td>
<td></td>
<td>Due date: April 29&lt;sup&gt;th&lt;/sup&gt; from 5:00-5:50 pm (CST) on D2L</td>
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