Intro to Chemistry I Lab  
CHEM 1105-023/024/025  
Fall 2023  
(Students must be enrolled in or have already passed CHEM 1305)  

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr. Bidisha Sengupta</th>
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<tbody>
<tr>
<td>Department</td>
<td>Chemistry &amp; Biochemistry</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:senguptab@sfasu.edu">senguptab@sfasu.edu</a></td>
</tr>
<tr>
<td>website</td>
<td><a href="https://d2l.sfasu.edu/d2l/home/419723">https://d2l.sfasu.edu/d2l/home/419723</a></td>
</tr>
<tr>
<td>Phone</td>
<td>936-468-2485</td>
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<tr>
<td>Office</td>
<td>Bush Building (Math Building) 112</td>
</tr>
<tr>
<td>Lab meets</td>
<td>Tuesday 1:30-3:20 PM at CHEM 106</td>
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Student Hours  
**In person:**  
M 4 - 5 pm  
T 10 am -12 pm  
W 11 am -12 noon  
*Outside student hours by appointment only. Email 2 days before meeting.*

**Course Description:** Introductory laboratory experiments.

**Number of Credit Hours:** 1 semester hour. This credit is not attached to CHEM 1305.

**Course Prerequisites and Co-requisites:** Co-requisite: CHE 1305.

**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.

**Lab location:**

<table>
<thead>
<tr>
<th>lab section</th>
<th>pre-lab lecture location</th>
<th>lab location</th>
<th>Discussion + lab time</th>
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<tbody>
<tr>
<td>-023</td>
<td>Chem-106</td>
<td>Chem-101</td>
<td>1:30-3:20pm Tuesday</td>
</tr>
<tr>
<td>-024</td>
<td>Chem-106</td>
<td>Chem-102</td>
<td>1:30-3:20pm Tuesday</td>
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<tr>
<td>-025</td>
<td>Chem-106</td>
<td>Chem-105</td>
<td>1:30-3:20pm Tuesday</td>
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**Text and Materials:** *Introductory Chemistry Lab (CHEM1105) Face-to-Face Laboratory Manual 19th ed* which is available to buy from chemistry department, email at kwiatkowc@sfasu.edu. A non-programmable, scientific calculator is required for all exams and quizzes.

**Grading Policy:**

- Prelab Quizzes (A): 15% (Lowest prelab quiz is dropped)
- Prelabs from Manual: 15% (No prelabs are dropped, even if not present for lab)
- Lab Quizzes (B): 15% (Lowest quiz is dropped. Bring a calculator)
- Lab Reports: 35% (8 Lab Reports + 1 assignment - Lowest grade is dropped)
- Midterm Exam: 10%
- Final Exam 10%
The grading scale for the lab is:

A = 89.5 and up
B = 79.5 – 89.4
C = 69.5 - 79.4
D = 59.5 - 69.4
F = Below 59.5

Laboratory quizzes:
Nearly every lab has two quizzes: Quiz A needs to be taken before lab. It covers the content and instructions given in the introduction of the lab report. Quiz B is given after the lab lecture and contains mathematical problems, so make sure you bring a calculator.

Prelabs:
They are to be completed before lab and contain sample problems that you’ll encounter in the lab report. Turn them in as you enter the room.

Laboratory experiments:
Eight laboratory experiments will be performed, and one worksheet assigned. The lowest experiment/assignment will be dropped, and the best 8 will be kept. The report sheets will be turned in at the end of the laboratory period or in the box located outside Bush Building Room 117 by the following Friday (12 noon). There will be a 20% off for every 24 hours delay in late lab reports.

Midterm and Final Exam: The midterm and the final are each worth 10% of your grade.
A midterm exam will be given Oct 10 during the laboratory period. It will cover material from the safety video and rules, and labs #1 to #4.
The final exam will be given Nov 14 during the laboratory period. It will cover material from Labs #5 to 8.

Make-up/Late Policy: NO make-up labs will be given. If you know beforehand of an unavoidable absence, try to attend any of the other lab sections (on Monday). Late lab reports will have 20% deducted for every 24 hours delay from graded score. Labs 1-4 will not be accepted after midterms.

Expectations:
Come to lab prepared 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, closed-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. If you want to work on a lab report, go to room Chem106.
One warning concerning safety glasses/goggles will be given. A person will be sent home for a second offense and 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. 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.

**POINTS WILL BE DEDUCTED FROM YOUR GRADE FOR NOT FOLLOWING THE COURSE REQUIREMENTS OR THE LABORATORY BEHAVIOR POLICY**

**Outline of Topics:**
Safety and Introduction to Chemistry Lab (Week 1, Sept 5)
Significant Figures (Week 1, Sept 12)
Density (Week 1, Sept 19)
Spectrophotometry, Concentration (Week 1, Sept 26)
Types of Reactions: Exothermic, Gas Evolution, Precipitation (Week 1, Oct 5)
Acid-base Standardization, Titrations (Week 1, Oct 5)
Buffers and pH (Week 1, Nov)

**Attendance Policy:**
Attendance of class is mandatory. There is one dropped lab report grade, but all prelabs need to be turned in, regardless of absence or presence.

**General Education Core Curriculum Objectives:** The Texas Higher Education Coordinating Board has identified six core learning objectives: 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. Chemistry core courses only develop the first four core-learning objectives: critical thinking, communication, empirical and quantitative, teamwork.

**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.

**Course Objective:** The student will develop an understanding of the basic concepts, laws and theories of chemistry and apply them to chemistry problems through a laboratory setting. The student should learn the skills needed to demonstrate competency in introductory chemistry laboratory techniques.

**Student Learning Outcomes:** Upon completion of this course, the students are expected to apply chemistry concepts using critical thinking skills and the scientific method to analyze and evaluate information to reach conclusions within problem sets and lab experiments. (COs 1 & 3) use communication skills to demonstrate their interpretation and analysis of scientific data and express their ideas and thoughts. (CO 2) apply logic, quantitative reasoning, and pattern recognition to analyze and evaluate numerical data/observable facts to reach conclusions within problem sets and lab experiments. (COs 1 & 3) demonstrate the ability to cooperate within groups to gather results of an experiment, analyze data, and draw conclusions using communication skills. (COs 2 & 4)

**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.

**CODE OF STUDENT CONDUCT AND ACADEMIC INTEGRITY (10.4):**

*The Code of Student Conduct and Academic Integrity* outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

Any student found cheating will be subject to the penalties as stated in the Student Code of Conduct handbook; including but not limited to a score of zero on exam, expulsion from the class or expulsion from the University.

**WITHHELD GRADES SEMESTER GRADES POLICY (5.5):**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. For additional information, go to [https://www.sfasu.edu/policies/course-grades-5.5.pdf](https://www.sfasu.edu/policies/course-grades-5.5.pdf).
The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**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/.

**STUDENT WELLNESS AND WELL-BEING:**
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

**ON-CAMPUS RESOURCES:**
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education
  www.sfasu.edu/thehub
  936.468.4008
  thehub@sfasu.edu

**CRISIS RESOURCES:**
- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
• johCrisis Text Line: Text HELLO to 741-741

This course meets educator preparation standards for one or more certification programs; a complete listing of all the educator preparation standards this course meets can be found at: https://sfasu.edu/docs/jacksteach/jacksteach-standards-alignment-chart.xlsx

Course Calendar on Next page:
All Lab Reports due by 12:00 pm the following Friday. Either turn the lab report in directly to the instructor or place it in the turn-it-in-box located outside Room 117, Bush Math Building.

### CHEM 1105 Laboratory - Course Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab Exercise/Assignment/Activity</th>
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<tbody>
<tr>
<td>Week 1 Aug 29</td>
<td>Review the syllabus and the safety rules. Watch the Safety Video by the American Chemical Society (link below). Take notes on the video, study the notes, read rules in lab manual, read introduction to Lab #1 Density, complete the prelab. Video: <a href="https://www.youtube.com/watch?v=MARP5Ti33II">https://www.youtube.com/watch?v=MARP5Ti33II</a>. <em>Take Quiz 1A afterwards. Quiz is located under Course Tools → Quizzes on your D2L page.</em></td>
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</table>
| Week 2 Sept 5 | **Lab #1: Measurement Laboratory– Please have entire lab instructions already read.** *Quiz 1A and the prelab should be completed before arrival.*  
**Instruction:** Syllabus, Measurements, Significant Figures. Quiz 1B will be given.  
**Assignment:** Meet in Lehmann Chemistry building Room 106 for room, TA, and lab drawer assignments. Groups 1 and 2 are assigned for the next lab (Lab 2). Complete measurement laboratory and perform all calculations and graphs. Evaluate data, discuss findings, and provide a written summary and conclusion of your results. Turn in Laboratory Report before or on due date. Where? Either to the instructor before leaving lab or in box outside Bush Building room 117.  
**Due Friday: 12 noon, Sept 8** |
| Week 3 Sept 12| **Lab #2: Density Laboratory– complete prelab & Quiz 2A before coming to lab.**  
**Instruction:** Density, graphing, and calculations. Quiz 2B will be given.  
**Assignment:** Complete density laboratory and perform all calculations. Graph data appropriately. Evaluate data, discuss findings, and provide a written summary and conclusion of your results. Turn in Laboratory Report before or on due date Friday: 12 noon, Sept 15 for Group 1, and 12 noon, Sept 22 for Group 2. |
| Week 4 Sept 19| **Lab #3: Concentration and Dilution Laboratory – complete prelab and Quiz 3A before coming to lab.**  
**Instruction:** Concentration units, dilution and solution calculations, how to make a solution, information about spectrophotometers. Quiz 3B will be given.  
**Assignment**  
Complete concentration and dilution lab  
Discuss results with team and other teams. (Exchange contact information.)  
**Due Friday: 12 noon, Sept 29** |
| Week 5 Sept 26| **Lab #4: Chemical Reactions ALL STUDENTS – complete prelab and Quiz 4A before coming to lab**  
**Instruction:** Types of chemical equations, balancing chemical equations. Read syllabus about empirical and quantitative skills. *Chemical Equations homework assignment given. Due with the Prelab 5 (In 2 weeks) There is no Quiz B, since there are no calculations.*  
**Assignment**  
Carry out assigned chemical reaction in lab  
**Due Friday: 12 noon, Oct 6.** |
<p>| Week 7 Oct 10 | <strong>Midterm Exam (10% of your grade) – Bring Calculator and ruler. Covers Labs 1-4 + Safety.</strong> See study guide provided under Content on your D2L page. |
| Week 8 Oct 17 | <strong>No Lab this week</strong> |</p>
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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Oct 24</td>
<td><strong>Lab #5: Acid-Base Titration</strong> – complete prelab and Quiz 5A before coming to lab. Turn in Balancing Equations worksheet. <strong>Instruction:</strong> Review of chemical concepts needed for titration, empirical/quantitative skills, emphasize good communication among group members to accomplish task, analyze data so conclusion(s) can be made. Demonstrate how to perform titrations. <strong>Assignment:</strong> Perform titration using NaOH and HCl with indicator to determine endpoint quantitatively. Have each team member take turns on performing the titrations. <strong>Due Friday:</strong> 12 noon, Oct 20.</td>
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<td>Oct 31</td>
<td><strong>Lab #6: Titration II: Antacid Titration</strong> – complete pre-lab and Quiz 6A before coming to lab. <strong>Instruction:</strong> Stomach acid and calcium carbonate reaction. Calculating amounts of HCl neutralized by CaCO3 and NaOH in the titration. Quiz 6B will be given. <strong>Assignment:</strong> Perform simple titrations using pH indicator to determine endpoint qualitatively. Use data to perform titration calculations. <strong>Due Friday:</strong> 12 noon, Oct 27.</td>
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<td>Nov 7</td>
<td><strong>Lab #7: Titration III: Comparison of Name Brand and Generic</strong> – complete pre-lab and Quiz 7A before coming to lab <strong>Instruction:</strong> Expectations of graph and evaluation. % active ingredient calculations. <strong>Assignment:</strong> Perform titration using generic brand and name brand antacids. Calculate % active ingredient and evaluate effectiveness. <strong>Due Friday:</strong> 12 noon, Nov 3</td>
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<td>Nov 14</td>
<td><strong>Lab #8: Buffers and pH</strong> – no prelab, but there is a prelab Quiz 8A you need to take before coming to lab+Checkout. <strong>Instruction:</strong> Acids/Bases, pH, Buffers, and checkout instructions. Take Quiz 8B. <strong>Assignment:</strong> Determine which sample acts as a buffer; Compare reaction rate of O₂ production at different pH/buffers. <strong>Check out of lab drawer before leaving.</strong> <strong>Due Friday:</strong> 12 noon, Nov 10</td>
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<td>Nov 21</td>
<td>Thanksgiving</td>
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<td>Nov 28</td>
<td>Break for final review and prep</td>
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<td>Dec 5</td>
<td><strong>Laboratory Final</strong> (10% of grade) – covers titration labs and buffer lab. Please see the study guide. Bring a calculator. Room#Chem106</td>
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