General Chemistry I Laboratory  
CHEM 1111  
Spring, 2024

Instructor: Dr. B. M. Barngrover  
Office: M 124  
Phone: (936) 468-1568  
e-mail: barngrovbm@sfasu.edu  
Student Hours: M 10:00 am – noon, M 1:30 pm – 3:30 pm, T 11:00 am – noon; other times by appointment

Instructor: Dr. J. B. Gary  
Office: M 116  
Phone: (936) 468-2189  
e-mail: garyjb@sfasu.edu  
Student Hours: MWF 11 AM - noon; F 1:30-3:30 PM; other times by appointment

CATALOG DESCRIPTION: Laboratory techniques and applications. Spectroscopy, quantitative experiments.

PREREQUISITES: MATH 1314 or MATH 1324

CO-REQUISITES: CHEM 1311

COURSE CONTACT HOURS AND STUDY HOURS: This course is for 1 credits and spans 16 weeks. The course contains virtual experiments and ‘in-person’ experiments. Each assignment consists of data collection, data manipulations, and assignments which must be completed by the end of each week. These activities average at a minimum 3 hours of work each week to prepare outside of time spent engaging with the content.

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.

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. The chart below indicates the core objectives addressed by this course.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>How the Core Objective Will be Addressed.</th>
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</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information.</td>
<td>Classification of Reactions, Solubility Rules, Limiting Reactant, Lewis Diagrams, Valence Shell Electron Pair Repulsion Theory (Chapters 3, 4, 8, 9)</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation, and expression of ideas through written, oral, and visual communication.</td>
<td>Developed in Laboratory</td>
</tr>
<tr>
<td>Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Stoichiometry, Significant Figures, Thermodynamics, Gas Laws (Chapters 1, 3, 5, 10)</td>
</tr>
<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>Developed in Laboratory</td>
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<tr>
<td>Personal Responsibility</td>
<td>To include the ability to connect choices, actions, and consequences to ethical decision-making.</td>
<td>Developed in Laboratory</td>
</tr>
<tr>
<td>Social Responsibility</td>
<td>To include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.</td>
<td>Developed in Laboratory</td>
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</table>

**REQUIRED TEXTS AND OTHER MATERIALS:** All required material will be posted on D2L.
Scientific Calculator


**COURSE GOALS:** The student should learn basic laboratory techniques and be able to apply them in a practical chemistry setting. Students will also be exposed to basic laboratory skills via a Virtual Laboratory. Data will be collected and analyzed.

**STUDENT OUTCOME OBJECTIVES:**
Upon completion of this course students will:
- Understand and apply method and appropriate technology to the study of natural sciences.
- Recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
- Demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
- Demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

**COURSE REQUIREMENTS:** Grading is on a 200 point scale. Each assignment experiment counts 10 points. The 2 lowest grades will be dropped. There will be 19 ‘lab assignments.’ Some will be ‘in-person’ experiments, some will be virtual assignments. The final exam is worth 30 points. The final exam will be given on D2L the week of December 6-7. Failure to take the final will result in a failing grade for the course.

**COURSE CONTENT:** Please see attached schedule

**METHOD OF EVALUATION:**
Grading scale - A ≥ 180; B ≥ 160; C ≥ 140; D ≥120; F = below 120

**MAKE-UP/ATTENDANCE POLICY:** There will be no make-ups in this class. You need to make sure you are keeping up with the assignments and completing them by the due dates.

**SEMESTER WITHDRAWALS:** Last day to withdraw from the course without obtaining a WH grade is April 10th.
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Academic Integrity:
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.

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 coursework 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 to compute the grade point average. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

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 promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Educator Preparation:
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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

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

Instructor reserves the right to change the syllabus at any time.

LABS: All of the experiments we will be doing will be posted on D2L. There are several that are associated with the Virtual Laboratory Program (VCL). There are instructions on how to access the VCL via the university VDI server found on D2L.
For each lab, you will find a set of written directions, with data tables and calculations to perform. These instructions can be found on D2L. You will find the schedule of labs on the next page that gives when you should finish the assignments. For many of the experiments, you will need to complete the assignment and upload the document to the appropriate Dropbox in D2L. When we ask you to submit an assignment to Dropbox, the best way to do that is to do the assignment, scan it, and upload a PDF. We understand if you must use an alternate method, but the PDF is the easiest for us to work with and grade.

The PreLab assignments must be completed the Monday **BEFORE** the lab is done, by 11:59pm. Pay very close attention to the lab schedule as there is not a PreLab every week. Lab assignments are due the Friday **AFTER** the lab is completed, by 11:59pm.

For the PreLabs, they will consist of questions/calculation that are associated with the specific VCL content. We have these set to be graded by D2L, but we go through and review all submissions to make sure that they are graded correctly. Please understand that this take additional time.

We have DUE DATES for every assignment. Please keep up with the assignments and submissions. If you fall behind, it becomes very difficult to catch up. You can work ahead if you want; we will, hopefully, have all the quizzes/dropboxes ready to go. The Final Exam will be given on D2L the week of April 30th-May 2nd.

In the schedule, you will see some items titled Modules and some titled Experiments. If it is a Module, it is a Virtual Chemistry Lab and will be completed in the VCL. If it is an Experiment, it is a hands-on laboratory and the directions can be found on D2L.
## COURSE CONTENT:

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>January</td>
<td>23-24</td>
<td>Module 1: Significant Figures 1 (Due 01/26/24 by 11:59pm)</td>
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<td>30-31</td>
<td>Module 2: Dimensional Analysis (Due 02/2/24 by 11:59pm)</td>
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<td>Check in</td>
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<td>February</td>
<td>6-7</td>
<td>Experiment #1 Unknown Solid (Due 02/9/24 by 11:59pm)</td>
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<td>13-14</td>
<td>Experiment #2 Unknown Liquid (Due 02/16/24 by 11:59pm)</td>
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<td>20-21</td>
<td>(Pre-Lab) Module 3: Counting Atoms/Molecules/Protons/Neutrons/Electrons (Due 02/19/24 by 11:59pm)</td>
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<td>Experiment #3 Formula of a Hydrate (Due 02/23/24 by 11:59pm)</td>
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<td>27-28</td>
<td>Module 4: Names and Formulas (Due 03/01/24 by 11:59pm)</td>
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<td>Module 5: Precipitation Reactions (Due 03/01/24 by 11:59pm)</td>
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<td>March</td>
<td>5-6</td>
<td>(Pre-Lab) Module 6: Equivalence Points/Titrations (Due 03/04/24 by 11:59pm)</td>
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<td>12-13</td>
<td><strong>Spring Break</strong></td>
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<td>19-20</td>
<td>Experiment #5 Titration 2 (Due 03/22/24 by 11:59pm)</td>
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<td>26-27</td>
<td>Experiment #6 Titration 3 (Due 04/01/24 by 11:59pm)</td>
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<tr>
<td>April</td>
<td>2-3</td>
<td>Module 7: Nomenclature (Due 04/05/24 by 11:59pm)</td>
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<td>9-10</td>
<td>Module 8: Gas Laws (Due 04/12/24 by 11:59pm)</td>
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<td>Module 9: Real verses Ideal Gases (Due 04/12/24 by 11:59pm)</td>
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<td><strong>10</strong></td>
<td><strong>Last Day to Withdraw without WH (04/10/24)</strong></td>
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<td>16-17</td>
<td>(Pre-Lab) Module 10: Heat of Combustions/Heat of Reactions (Due 04/15/24 by 11:59pm)</td>
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<td>Experiment #7 Heats of Reaction (NaOH/HCl and NaOH/H₃PO₄) (Due 04/19/24 by 11:59pm)</td>
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<td>Check Out</td>
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<td>23-24</td>
<td>Module 11: Specific Heat (Due 04/26/24 by 11:59pm)</td>
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<td>Module 12: Hess’ Law (Due 04/26/24 by 11:59pm)</td>
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<td>May</td>
<td>30-2</td>
<td>Final Exam</td>
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<td>7-8</td>
<td>Final Exam Week <strong>No assignments</strong></td>
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