CHE 1112L Sections 020, 021, 022
General Chemistry II Laboratory

Instructor’s Name | Dr. Darrell R. Fry
---|---
Your TA’s Name (blank intentionally, you write it in later) |  
Department | Chemistry & Biochemistry
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Email | frydr@sfasu.edu
Departmental Phone Number | 936.468.3606
Office | Math 118
Office Hours | MW 1-2:30 and TR 9-10:30 and by appointment
Laboratory Time | Friday 1:30-4:20
Meeting Room | Chemistry 101 then we move to a specific laboratory

The grade is separate from the lecture grade.

**Number of Credit Hours**: 1 semester hour. **The grade is separate from the lecture grade.**

**Course Description**: General Chemistry II Laboratory

**Hour Justification**: This lab course is for 1 credit and typically meets for 170 minutes a week for 13 weeks. Students have 6 plotting exercises which must be completed outside of the meeting times. These activities take 30 minutes or more each for an additional 180 minutes of instruction. Students have significant reading to prepare for lab each week and lab reports involving critical thinking and quantitative reasoning. Students are expected to prepare prior to each lab (literature and concepts), conduct experiments during the scheduled time. Students have required academic components and deliverables: homework, assessments, and lab quizzes. These activities, inclusive of the lab expectations and academic components, average a minimum of 5 hours each week.

**Course Prerequisites and Corequisites**: Prerequisites: CHE 1311 and 1111L. Co-requisite: CHE 1312. 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 concepts, laws and theories of chemistry and to apply them to chemistry problems through a laboratory setting. The student will demonstrate basic laboratory techniques and be able to apply them in a practical chemistry setting.
CLASS LOCATION:
All labs will meet initially in Chem 101 then move to the appropriate laboratory.

Student Learning Outcomes: Upon completion of this course, the students are expected to
- apply chemistry concepts to problem solving.
- apply quantitative methods to problem solving.
- demonstrate the knowledge of issues facing modern science and have the confidence and laboratory skills needed to complete routine experiments.
- demonstrate the knowledge of the influence of modern technology on chemistry by using instrumentation to collect data during laboratory experiments.

Outline of Topics (approximate course time):
Orientation, Lab Safety (1 lab day)
Guided Practice #1-Setting up for a Titration; Reading the buret; using the volumetric pipe (1 lab day)
Guided Practice #2-Tit of WA (liquid acetic acid ~0.1M) with a SB (NaOH 0.1000M) using a phenolphthalein (1 lab day)
Titration. SA with a SB using pH meter & indicators (1 lab day)
Titration of a WA with a SB (1 lab day)
Dry Lab Buffer Calculations (1 lab day)
Kinetics Plotting (1 lab day)
Kinetics Experiment; Kinetics: Determination of the order of a Reaction (2 lab days)
Acid-Base Equilibria: Ionization Constant of an Acid (1 lab day)
Scientific Writing (1 lab day)
Structured use of Excel (1 lab day)
General Education Core Curriculum Objectives:

- To understand and apply method and appropriate technology to the study of natural sciences.
- To 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.
- To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
- To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

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.

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 through Dropbox, the assessment management system selected by SFA to collect student work for core assessment 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 to Dropbox this semester, and the date the assignment(s) should be uploaded to Dropbox (if required). Not every assignment will be collected for assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in Dropbox this semester.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in LiveText</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO 1 - Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Assessed in lab “Library assignment &amp; research paper”</td>
<td>See Syllabus Not assessed in Fall</td>
</tr>
<tr>
<td>CO 2 - Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Assessed in lab - Not assessed in Fall 2022</td>
<td>See Syllabus Not assessed in Fall</td>
</tr>
<tr>
<td>CO 3 - Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Assessed in lab -Not assessed in Fall 2022</td>
<td>See Syllabus</td>
</tr>
<tr>
<td>CO 4 - 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>Assessed in lab -Not assessed in Spring 2015</td>
<td>See Syllabus</td>
</tr>
<tr>
<td>CO 5 - Personal Responsibility</td>
<td>To include the ability to connect choices, actions and consequences to ethical decision-making.</td>
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<tr>
<td>CO 6 - 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>
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TEXT AND MATERIALS:
1. Scientific calculator (non-graphing and non-programmable); for example, SHARP EL-501WBBK, CASIO 115, Texas Instrument 30 XIIS. No programming or graphing calculators are to be used in exams and/or quizzes.
2. A smart phone (with camera) and software. The phone/software combination must be able to take a picture, convert it to a pdf and upload it to the D2L drop box in the laboratory.

Parts of the laboratory can be completed outside of lab time; HOWEVER, the raw data must be uploaded prior to leaving lab as a single pdf and placed into the appropriate drop box on D2L.

COURSE GRADING:
Grades are based upon performance. Students who are not safe will receive a zero for the lab until they submit a 1-page written report on lab safety. Moreover, students will not be allowed back into the laboratory until all disciplinary actions have taken place.

The lowest of the 15-point laboratories will be dropped.

Grading scale - A= 90 - 100%; B= 80 - 89%; C= 70 - 79%; D= 60 - 69%; F= below 60%

ATTENDANCE POLICY:
Attendance of class is mandatory. A total of two unexcused absences will result in the student being dropped from the class with a grade of "F". There are no makeups for the laboratory.

ACADEMIC INTEGRITY (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.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit. Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp. 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.
Students are expected to make their own unique Excel Files. Excel files that are not unique (or began with another’s template) will receive a zero.

Students must indicate who is in their group; students may share data within their own group. However, data cannot be shared with other groups without the express permission of the instructor (who will sign your lab materials); moreover, you must give an appropriate acknowledgement to the group who produced the data.

If any portion of the data is made up or manipulated then the entire experiment will receive a zero and the student will be reported to the Dean of Students.

WITHHELD GRADES SEMESTER GRADES POLICY (A-54): 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. 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/.

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.

MENTAL HEALTH AND WELLNESS:
SFA values students’ mental health and the role it plays in academic and overall student success. 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:
SFA Counseling Services
www.sfasu.edu/counselingservices
Health and Wellness Hub (corner of E. College and Raguet)
936.468.2401

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

Crisis Resources:
Burke 24-hour crisis line: 1.800.392.8343
Suicide Prevention Lifeline: 1.800.273.TALK (8255)
Crisis Text Line: Text HELLO to 741-741
### COURSE CALENDAR:

<table>
<thead>
<tr>
<th>Date</th>
<th>Experiment</th>
<th>Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/19</td>
<td>Check In; orientation, Safety</td>
<td>10</td>
</tr>
<tr>
<td>1/26</td>
<td>Guided Practice #1-Setting up for a Titration; Reading the buret; using the volumetric pipet</td>
<td>10</td>
</tr>
<tr>
<td>2/2</td>
<td>Guided Practice #2-Tit of WA (HC₂H₃O₂ (l) ~0.1M) with a SB (NaOH 0.1000M) using a phenolphthalein</td>
<td>10</td>
</tr>
<tr>
<td>2/9</td>
<td>Lab Report Rubric</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Virtual: Using Microsoft Excel</td>
<td></td>
</tr>
<tr>
<td>2/16</td>
<td>Kinetics Rate Law and Order Requiring plotting outside of laboratory using Excel</td>
<td>15</td>
</tr>
<tr>
<td>2/23</td>
<td>Rate Determination and Activation Energy Requiring plotting outside of laboratory using Excel</td>
<td>15</td>
</tr>
<tr>
<td>3/1</td>
<td>Individual Writing Time</td>
<td>15</td>
</tr>
<tr>
<td>3/8</td>
<td>Peer Review of Lab Report</td>
<td>25</td>
</tr>
<tr>
<td>3/15</td>
<td><strong>SPRING BREAK</strong></td>
<td></td>
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<tr>
<td>3/22</td>
<td>Titration Calculations</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Lab Report Due</td>
<td>50</td>
</tr>
<tr>
<td>3/29</td>
<td><strong>EASTER</strong></td>
<td></td>
</tr>
<tr>
<td>4/5</td>
<td>Investigating Indicators Requiring plotting outside of laboratory using Excel</td>
<td>15</td>
</tr>
<tr>
<td>4/12</td>
<td>Determining the Ka by the titration curve Requiring plotting outside of laboratory using Excel</td>
<td>15</td>
</tr>
<tr>
<td>4/19</td>
<td>Ionization Constant of an Acid</td>
<td>15</td>
</tr>
<tr>
<td>4/26</td>
<td>VIRTUAL: Buffer Calculations</td>
<td>15</td>
</tr>
<tr>
<td>5/3</td>
<td>Check out &amp; Written Lab Final</td>
<td>100</td>
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LAB POLICIES:

1) The easiest way to communicate with me, and leave a trail that others can follow is through email. A few items about email.
   a) I do not respond to email sent through the D2L system. You can email me from your JACKS account at frydr@sfasu.edu and I will respond in a timely manner (about 6 working hours is timely).
   b) I do not check my email after 4 pm or on the weekends.

2) You can also ask me questions during my office hours.

3) You can also ask me questions during laboratory. However, I do not answer questions about grades immediately before, during or immediately after class. Grades are confidential, and this policy helps keep them confidential.

4) If you find an error in the grading, politely bring it to my attention in a timely manner (a week or so). I will do my best to resolve it.

5) Students are expected to produce during laboratory time! Students who are not productive during the laboratory will be assigned an unexcused “0” for the experiment. In order to be productive, you must be prepared which includes:
   a) Appropriate clothing: close toe shoes, hair back, well-fitting clothing, etc…
   b) Have read and understood the experiment to be performed that day.
   c) Remember the procedures and content from the previous laboratories.
      i) This is especially important when we work with the glassware. If you do not know what the glassware is, then you cannot be productive during laboratory. Taking (and reviewing) your own notes helps tremendously with this.
      ii) This is also important when you are plotting. We will show you how to plot, but you will have to remember how to do it. Taking (and reviewing) your own notes helps tremendously with this.

6) All laboratories will be submitted to D2L via the digital drop box
   a) Upload the laboratory sheets as a single pdf.
   b) Upload your unique EXCEL FILE as an Excel File.
   c) (Only the final will be collected by hand).

7) THERE IS NO FOOD, DRINK, CHEWING OF ANYTHING, SHORTS/SKIRTS, OR OPEN TOED SHOES ALLOWED IN THE LAB!!!!!!!!!

8) APPROVED SAFETY GOGGLES ARE TO BE WORN AT ALL TIMES IN THE LAB.

9) Infractions of any safety regulations will result in one warning being issued. If a second infraction occurs, the student will be asked to leave the lab for that day and will be assigned an unexcused “0” for the experiment.
10) There are no make-up laboratories!
   a) If you miss 2, you very likely will fail!
   b) If it is a dry lab, we can work around it; however, you will have
      missed fundamental material needed for the next sets of
      laboratories.
   c) The safety, the Guided Practice #1 and the Guided Practice #2
      must be completed in order to pass the course.
11) Making up or modifying data will get you a trip to the Dean of Students
    and a zero for the experiment.
12) Laboratories that require outside work are due Thursday at 11:59pm. Late
    laboratories will be penalized 5 points per 24 hours.
13) Numerous laboratories must be completed during the lab period. These
    include: The guided practice #1, guided practice #2 and the safety/check,
    Individual Writing Time, Peer Review of Lab Report, Titration
    Calculations and Buffer Calculations. These must be uploaded to the D2L
    before 11:59 of the lab day.
    a) Late work will be penalized.
    b) Moreover, many of these labs cannot be made up.
14) Considerable instruction time has been allotted to walk students through
    formal lab report: 1) a detailed rubric has been provided and explained; 2) a
    dedicated lab period for writing, and 3) class time for a peer review has
    been provided. Therefore, if the final lab report does not meet
    expectations, students should expect to receive a very, very low score.
    The formal lab report is worth enough points that receiving a very low
    score on it will hurt your course grade a lot.
    a) I strongly suggest students dive into and understand the detailed
       rubric!
    b) I strongly suggest students write during the scheduled writing time.
    c) I strongly suggest that students take advantage of the peer review
       to really understand the strengths and weaknesses of their own
       work (and of others).