QUESTIONS: Please read this syllabus first and then check the Announcements and the Course Questions in D2L. If you have any questions and can’t find answers there, then email me via D2L. Thank you!

* Please remember that you are responsible for knowing and abiding by all information in this syllabus. The content and dates may be modified at the instructor’s discretion. Any changes made will be informed via course announcements in D2L.*

This syllabus is your top go-to guide for assignments and due dates. If you see something on the syllabus but cannot locate it within D2L, please do not assume the assignment has been deleted. Instead, email your instructor.

Instructor Information:

Instructor:  Bidish Sengupta, Ph.D.
College: College of Sciences and Mathematics
Department: Chemistry and Biochemistry
Office Hours: By email and via zoom video conferencing (2-4 PM, M, W, F)
Office Phone: (936)-468-2243
Email: Message me via D2L please by logging into the course and using the email icon to the top right (alternative, IF D2L is down: bidisha.sengupta@sfasu.edu).

Course Information:

Times: There are no required face-to-face meeting as this course is delivered fully online via D2L. As our class starts from Tuesday, you will see that all the assignments are due on Monday at 11:59 PM. All due dates in the syllabus and D2L are based on CDT/CST (Texas) time zones. Late assignments or extensions will not be considered due to difference in time zones.

Prerequisites: None, but students should be eligible for MTH 138 and the course must be taken concurrently with CHE 111L: Introductory Chemistry Lab I.

Text and Materials:

Course Materials:

Here is the ISBN for access to Modified Mastering with etext for Introductory Chemistry 6th edition by Nivaldo J. Tro: 9780134565620
To register for CHE-111-916:

1. Go to D2L.
2. You will see the Pearson Modified Mastering Widget.
3. Enter your existing Pearson account **username** and **password** to **Sign In**.
   - You have an account if you have ever used a MyLab or Mastering product.
   - If you don’t have an account, select **Create** and complete the required fields.
   - Enter the access code that came with your textbook or that you purchased separately from the bookstore.
   - If available for your course,
     - Buy access using a credit card or PayPal.
     - Temporary access won’t work for the 4 weeks, hence it is better to buy at the start of the class.
4. You're Done! Go to the assignments.

A non-programmable, scientific calculator is required for all exams and quizzes.

**Course Description:**
This course is designed to introduce students about (i) units of measure and significant figures, unit conversion, density and definitions of matter, (ii) basics of atomic theory applied to the atom, basics of the periodic table, correct use of terms, and the basics of nuclear chemistry, (iii) writing correct formulas of compounds and inorganic nomenclature as well as electron configuration, Lewis structure, and VSEPR theory, (iv) determination of atomic and molecular masses, mole calculations, Avogadro's number, mole and mass calculations in chemical formulas and chemical reactions, writing balanced chemical reactions, (v) principles of the gaseous state, gas laws (Boyles, Charles, Gay-Lussac, Ideal, Dalton's) as well as intermolecular forces in liquids and solids and properties of solutions, and (vi) principles of acid/base theories, pH, buffers, acid-base indicators, and titration.

**To be successful in this course you should do the following:**
- Begin the course with positive attitude and desire to learn!
- Get prepared on your first day of the session with your textbook, syllabus, and computer/internet.
- Read the syllabus carefully and mark your calendar for all assignments and deadlines accordingly. Take a note of course policies and other important directions.
- Familiarized yourself of how to use SFA's online D2L system for this course: [http://www.sfaonline.info/d2ltutorials](http://www.sfaonline.info/d2ltutorials)
- Check daily course announcements and D2L email for updates in course information, due dates, assignments, changes etc.
- Sign up for D2L notifications. This will allow you to receive messages in your email, as well as in your phone about due dates, announcements, grades, and more: For signing up, log into D2L, and click on the arrow by your profile (upper right-hand corner), and click on Notifications to manage these settings.
• Although, all due dates and assignments will be announced weekly via course announcement on the D2L course page but make sure, you always check due dates and assignments listed in the syllabus in a daily basis.
• Take notes while you are reading chapters and watching/listening to any course materials. A well-organized note always helps to do well in the exams. All materials including videos, homework, as well as quizzes will be considered as materials for the exam.
• Consider of submitting any assignments at least a few hours early and double-check to confirm what you submitted is the correct version in correct format. Please remember that whatever you have submitted by the deadline is what will be graded.
• Do not wait until the last minute to turn in your assignment.
• Do not forget to take a screenshot of all submitted course work and save them and also save all D2L submission receipts of Dropbox assignments.
• Should act as a problem-solver when issues arise (call tech support; use your back-up computer etc.)

I Am Having Trouble in Class. Where Can I Get Help?
• Paying a private tutor is many times NOT what students need if they are having trouble in the class. There are a number of resources that you have already paid for available to you on campus. I strongly recommend that you take advantage of following resources before paying additional money to a private tutor.

Some of these resources are:
• Your instructor: Email me to make an appointment for zoom video conferencing. I should be your first line of defense. I know what material is being taught, what material will be on exams, and what material you need to know (after all, I am the one who writes the quizzes & exams). You’ve already paid for me when you paid your course tuition. Don’t hesitate to come for help. I want to see you improve and do well. Don’t think that your question is unimportant or that you are wasting my time. That’s why they are there. Even if you are behind, come get help. You never know when you’ll need a recommendation letter from them -- it is a lot easier to write a letter for a student who has done well and we know well.
• You can get one-on-one tutoring at the AARC. Contact the AARC for more specific information on how to get a one-on-one tutor. You need to do this quickly, as only a limited number of slots are available and they fill up rapidly. There is also a Chemistry walk-in table at the AARC. Check with the AARC for more information.
• There will be a SI for this class.

Communication
There are a number of ways for us to communicate in this course:

• Discussions—Course discussion forum is designed to answer course-based questions throughout the semester. Please post any general questions about the course, the course content, or learning activities, to this discussion. We will use this forum to make sure we are connecting and that we all understand important course concepts together. I strongly encourage you to answer other students’ questions posted under Course Questions. If everyone is stuck, then your instructor will answer your question for more clarifications.
• **E-mail**—Please e-mail me via D2L by logging into the course and using the email icon to the top right. You can also use my alternative email address (bidisha.sengupta@sfasu.edu) for communications. I will check the e-mail at least once in each weekday (Monday to Friday), and once on the weekend (probably Sunday nights). Please make sure you log on to the course each day and check for e-mails and responses.

• **Office Hours**—If you have any questions about the course materials, your grades, study tips or more related to the course, I strongly ask you to come visit me during my office hours. My office is located in the Math building and room number is 112. For this semester, my office hours on Monday-Thursday 10-12 AM. If I need to reschedule due to some unforeseen reason(s), I will announce in D2L.

• **Appointments:** You may request an office appointment with me, but I must have 24 hours advance notice, and we must mutually agree on an acceptable time.

**Grading Policy:**

**Weekly homework** – Administered via Mastering Chemistry web site. Students are required to get access to the Mastering Chemistry web site. Instructions on how to navigate the Mastering Chemistry web site are provided at the website. Mastering Chem Homeworks will be averages on a 100 point scale. These HWs are due on Monday.

**Quizzes** – There will be weekly quizzes administered via D2L. Every quiz will be due on Sunday at 11:30 PM, consist of multiple choice questions. Look quizzes under quiz section in D2L. There will be 4 quizzes total, each worth 25 points. A total of 100 points from quiz is possible. Please remember quiz will be due in the Sunday evening (11:30 pm).

**Final exam** – 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. The final exam will be a comprehensive, multiple-choice, on the materials of lectures. Final exam will have 80 questions and will be worth 100 points. It will be due on July 7, at 5 PM. It will be given in D2L.

Missed Exams (Homework 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.

**Method of Evaluation:** The final grade will be based upon percentage of points obtained in the following:

<table>
<thead>
<tr>
<th>item</th>
<th>point value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOMEWORK in Modified Mastering</td>
<td>100</td>
</tr>
<tr>
<td>4 Quizzes in D2L</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam in D2L</td>
<td>100</td>
</tr>
<tr>
<td><strong>TOTAL POINTS</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
</table>

*Grading scale (Based on total of 750 points possible)*

≥ 270 A; ≥ 240; B; ≥210 C; ≥180 D; < 180=F

**Attendance Check**

**Register your Attendance**

Go to the Course Tools section and open the Discussion Tool, you will find at the top, 4 attendance checks--one each week. Please post your learning outcome. It can be anywhere between 50-100 words.

**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](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.

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/.

CORE OBJECTIVES AND RESOURCES
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. Although this chemistry course develops the first four core-learning objectives, it only submits assessment assignments to the University Core Assessment Committee every even Spring for the Teamwork general education core curriculum requirement. If this is an even spring semester, 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 the even spring semester, you will receive an assignment in the laboratory portion of the course that fulfills both the requirements of the lab 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
Chemistry dropbox and the Teamwork dropbox. Please note that this only applies to the specific teamwork assignment given in the lab section of this course. 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.

Below is a description of each Core Objective, followed by a chart that shows the topics covered in this course with their corresponding core objectives.

**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 (accessed May 31, 2013)

Three especially informative links within the link shown above are:

- Effective Communication
- Effective Writing
- Audience/Purpose

Core Objective 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

Summary:

<table>
<thead>
<tr>
<th>Core Objective 1: Critical Thinking Skills</th>
<th>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Objective 2: Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
</tr>
<tr>
<td>Core Objective 3: Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
</tr>
<tr>
<td>Core Objective 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. <em>This Core Objective is Strongly Emphasized in Lab.</em></td>
</tr>
</tbody>
</table>

**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. (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)
### Course Syllabus: CHE 111
#### Introduction to Chemistry I
##### Summer II, 2020

**Course Topics:**
(Course Calendar follows this chart)

<table>
<thead>
<tr>
<th>Ch</th>
<th>Topic</th>
<th>Core Objective</th>
<th>Specifics…</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Definition of Chemistry Scientific Method/Processes</td>
<td>Core Objective 1: Critical Thinking Skills</td>
<td>Analyzing and Interpreting data from a scientific investigation. Inquire about the natural world.</td>
</tr>
<tr>
<td>2</td>
<td>Measurement</td>
<td>Core Objective 3: Empirical and Quantitative Skills</td>
<td>In problem solving, learn to apply significant figures and apply the terms accuracy and precision to measurements.</td>
</tr>
<tr>
<td>3</td>
<td>Atoms and Periodic Table; Classifying Matter; Physical and Chemical Properties and Changes; Energy</td>
<td>Core Objective 2: Communication Skills Core Objective 4: Teamwork</td>
<td>Identify and justify as a class classification of matter and types of changes.</td>
</tr>
<tr>
<td>4</td>
<td>Parts of the Atom (subatomic particles); Ions and Isotopes</td>
<td>Core Objective 1: Critical Thinking Skills</td>
<td>Analyze composition of ions after gaining or losing electrons. Calculating atomic mass.</td>
</tr>
<tr>
<td>5</td>
<td>Writing and Naming Chemical Compounds</td>
<td>Core Objective 1: Critical Thinking Skills Core Objective 2: Communication Skills Core Objective 4: Teamwork</td>
<td>Analyze and communicate with class both molecular vs. ionic compounds; construct proper formulas and discuss and justify names of compounds.</td>
</tr>
<tr>
<td>6</td>
<td>Chemical Composition: Introducing the Mole and its Relationship with Grams.</td>
<td>Core Objective 3: Empirical and Quantitative Skills</td>
<td>Convert between particles, grams, and moles; calculate mass percent and empirical formulas.</td>
</tr>
<tr>
<td>7</td>
<td>Types of Reactions</td>
<td>All Core Objectives</td>
<td>Identify type of reaction; analyze reactants and determine products; balance reactions</td>
</tr>
<tr>
<td>8</td>
<td>Stoichiometry and Enthalpy Problems</td>
<td>Core Objective 3: Empirical and Quantitative Skills</td>
<td>Given an amount of a reactant or product, be able to calculate the amount of all other</td>
</tr>
<tr>
<td>10</td>
<td>Lewis Dot Structures and 3-D Molecular Geometry of Molecules. Lewis Dot Structures of Ionic Solids. Polarity.</td>
<td>Core Objective 1: Critical Thinking Skills; Core Objective 2: Communication Skills Core Objective 3: Empirical and Quantitative Skills</td>
<td>Analyze and construct a 3-D model of a molecule given valence electrons. Determine the overall polarity of molecules by evaluating polar bonds within the molecule.</td>
</tr>
<tr>
<td>11</td>
<td>Gas Behavior Given Various Conditions and Changes.</td>
<td>Core Objective 1: Critical Thinking Skills Core Objective 2: Communication Skills Core Objective 3: Empirical and Quantitative Skills</td>
<td>Communicate the effect on a gas when either volume, pressure, or temperature of a gas is changed. Calculate exact values of these changes using the gas laws.</td>
</tr>
<tr>
<td>12</td>
<td>Intermolecular Forces</td>
<td>Core Objectives 1-3</td>
<td>Communicate how intermolecular forces determine state of matter, volatility, and viscosity. Perform enthalpy calculations for vaporization and fusion.</td>
</tr>
<tr>
<td>13</td>
<td>Solution Concentration, Types of Solutions, Titrations, and Colligative Properties</td>
<td>All Core Objectives</td>
<td>Solve for Concentration in a solution or for a titration; Analyze how solute particles affect vapor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pressure, melting point, boiling point, and osmotic pressure. Discuss the effect of hyper-, hypo- and isosmotic solutions on cells.</td>
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<td></td>
</tr>
<tr>
<td>14</td>
<td>Acid and Base Definitions and Properties</td>
<td>Core Objective 1: Critical Thinking Skills; Core Objective 3: Empirical and Quantitative Skills</td>
<td>Identify acid and base properties. Analyze an acid’s and base’s conjugate pair. Calculate pH, pOH, [H$_3$O$^+$] and [OH$^-$]</td>
</tr>
<tr>
<td>15</td>
<td>Equilibrium</td>
<td>Core Objective 1: Critical Thinking Skills;</td>
<td>$K_{eq}$ calculations and Le Chatelier’s Principle</td>
</tr>
<tr>
<td>17</td>
<td>Nuclear Chemistry</td>
<td>Core Objective 2: Communication Skills</td>
<td>Types of radioactive decay; Fission vs. fusion</td>
</tr>
</tbody>
</table>
# Introductory Chemistry

**CHE 111-916**  
Tentative Class Calendar Summer II 2020  
**Dr. Bidisha Sengupta**  
*(All the due date times on the timeline are based on Central Standard Time)*

<table>
<thead>
<tr>
<th>Unit</th>
<th>Week End Date</th>
<th>Topics/Content</th>
<th>Activities &amp; Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>July 13th</td>
<td>Getting Started, Chapter 1-3</td>
<td>Attendance forum, Homework in Mastering, Quizzes in D2L (Check date and time in D2L)</td>
</tr>
<tr>
<td>Week 2</td>
<td>July 20th</td>
<td>Chapters 4-6</td>
<td>Attendance forum, Homework in Mastering, Quizzes in D2L (Check date and time in D2L)</td>
</tr>
<tr>
<td>Week 3</td>
<td>July 27th</td>
<td>Chapters 7-9</td>
<td>Attendance forum, Homework in Mastering, Quizzes in D2L (Check date and time in D2L)</td>
</tr>
<tr>
<td>Week 4</td>
<td>August 3rd</td>
<td>Chapters 10, 11, 14</td>
<td>Attendance forum, Homework in Mastering, Quizzes in D2L (Check date and time in D2L)</td>
</tr>
</tbody>
</table>

**August 4th – August 6th**  
Study for Final

**August 7th**  
Final on D2L