Introductory Chemistry
CHE 111.001; Cole STEM Building room 103
TR 8:00-9:15
Class Syllabus; Spring 2020

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Office | Cole STEM Building room 103
Student Hours | MWF 9:30-10:30 MWF

**COURSE DESCRIPTION:**
Introductory Chemistry. Introduction to the principles and concepts of chemical thought. Co-requisite: CHE 111L. Pre-requisite: eligibility for MTH 138 (algebra). This course is intended for non-chemistry majors. Chemistry and science majors need to take CHE133/134.

This course is for 3 credits and typically meets for 150 minutes a week for 15 weeks plus meets for a 2-hour final examination. Students have significant weekly reading and homework assignments involving critical thinking and quantitative reasoning. Students are tested over the material via quizzes and several exams during the semester including a comprehensive final exam. These activities average at a minimum 6 hours of work each week to prepare outside of classroom hours.

**TEXT AND MATERIALS:**
*Introductory Chemistry 6th ed.*, by Nivaldo J. Tro. The loose-leaf version of the book is available at the local bookstores contains contains access to Modified Mastering Chemistry, the required on-line homework. (Pearson publishing also has the e-book and homework option as well.).
To access the homework go to: [https://www.pearsonmylabandmastering.com/northamerica/](https://www.pearsonmylabandmastering.com/northamerica/)  The course name and ID are highlighted. CHE111_Harris_SFA_Spring2020 (harris78139). A scientific calculator is required for all exams and quizzes.

**COURSE CALENDAR:** ON SEPARATE PAGE

**GRADING POLICY:**

4-hour exams (100 pts per test). The dates of exams are shown on the course calendar. The exams will be given during class time. Exams may consist of any of the following types of questions: problems that must be set up and solved, nomenclature, discussion questions, fill in the blank, matching, and/or multiple choice. Partial credit may be given on some types of questions so it is important to always show your work. Credit will not be given for correct answers unless you show how you arrived at the answer.

**Final Exam** – The final exam will be comprehensive. It is worth 100 points.

**Quizzes** - Quizzes (10 pts each) will be given periodically in class, usually at the beginning of class. Announced or pop-quizzes are possible. No make up quizzes will be given. The lowest quiz grade will be dropped. (100 points)
Group assignments & take home assignments - Group and/or take-home assignments will be given periodically in class. The point value will be indicated on each group assignment. No make-up group work will be allowed. (50 points total)

On-line homework – Students are required to get access to the Mastering Chemistry web site (masteringchemistry.com). The course identification is CHE111_Harris_SFA_Fall_2016 (MHARRISCH111003FALL2016). Instructions on how to navigate the Mastering Chemistry web site are provided at the website and on D2L. (50 pts total)

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>
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</thead>
<tbody>
<tr>
<td>Exam I</td>
<td>100</td>
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<tr>
<td>Exam II</td>
<td>100</td>
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<tr>
<td>Exam III</td>
<td>100</td>
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<tr>
<td>Exam IV</td>
<td>100</td>
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<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
</tr>
<tr>
<td>On-line homework</td>
<td>50</td>
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<tr>
<td>Group Assignments</td>
<td>50</td>
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<tr>
<td><strong>TOTAL POINTS</strong></td>
<td><strong>700</strong></td>
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Grading scale (Based on total of 700 points possible)

- >630 = A;
- >560 = B;
- >490 = C;
- >420 = D;
- < 420 = F

Attendance Policy:
Attendance of class is mandatory. Seven (7) or more absences will result in an ‘F’ for the course. Absences may be assigned to anyone that disrupts class, sleeps in class, or consistently comes in late or leaves early. Six points will be added to the point total of anyone that has zero absences. Four points will be added to the point total of anyone that has only one absence. Two points will be added to the point total of anyone that has only two absences. Anyone with three absences or fewer will have the option of the percentage of their final exam grade replacing their lowest exam grade. {For the purpose of the bonus attendance points there is no distinction between excused and unexcused absences.} For a proven, excused absence for an exam during the semester, a comprehensive make up exam will be given on Friday, December 5, during class.

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.

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/.

CLASSROOM BEHAVIOR POLICY:
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.

CLASSROOM BEHAVIOR EXPECTATIONS:
- Come to class prepared (spend at least 2 hours working problems and quizzing yourself about previously covered material before each class period) and be on time and in your seat.
- Absences may be assigned to anyone that disrupts class, sleeps in class, or consistently comes in late or leaves early. Read Attendance Policy Section for how this can affect grades.
- Bring a scientific calculator. Cell phones and programmable calculators may NOT be used on quizzes or exams.
- Turn off and put away cell phones; NO text messaging during class. Anyone caught using a cell phone during class will have an absence assigned to them.
- Be courteous and respectful of other students, SI leader, and instructor.
- Learn your section number and your row number. Place row number on all items turned in.
- Significant figures are required on all answers given on quizzes, assignments and exams.
- No make up quizzes will be given if a student comes in late and misses the quiz.
- Students who violate these rules will be asked to leave. Repeat offenders will be subject to disciplinary action in accordance with University policies as described in the Code of Student Conduct.
CORE OBJECTIVES AND RESOURCES

NOTE: Assignments for assignment will be completed in the laboratory portion of the class.

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/soscience/philosophy/reichenbach/m1_chap02studyguide.html](http://www.mhhe.com/soscience/philosophy/reichenbach/m1_chap02studyguide.html)
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.

https://ian.umces.edu/learn/science_communication/

Principles of good science communication
(a) Provide synthesis, visualization & context; (b) Respect your audience - relate to audience and simplify terms but not content, (c) define all terms, and (d) make it look good.

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.

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.

http://www.merriam-webster.com/dictionary/teamwork

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
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<thead>
<tr>
<th>Tuesday</th>
<th>Thursday</th>
<th>homework due dates</th>
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<tbody>
<tr>
<td>01/16 Welcome, Introduction</td>
<td>01/16 Welcome, Introduction</td>
<td>Math Review – 1/22</td>
</tr>
<tr>
<td>Read CH 1; CH 2:Measurement &amp; Problem Solving</td>
<td>Read CH 2: Measurement &amp; Problem Solving</td>
<td>CH 1 – 1/20</td>
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<td>01/20 CH 2: Measurement &amp; Problem Solving</td>
<td>01/23 CH 2: Measurement &amp; Problem Solving</td>
<td>CH 2a – 1/25</td>
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<td>01/25 CH 3: Matter &amp; Energy</td>
<td>01/30 CH 3: Matter &amp; Energy</td>
<td>CH 2b – 1/27</td>
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<td>CH 4: Atoms and Elements</td>
<td>01/30 CH 3: Matter &amp; Energy</td>
<td>CH 3 – 1/31</td>
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<td>02/04 CH 4: Atoms and Elements</td>
<td>02/06 EXAM I (CH 1-4)</td>
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<td>02/05 CH 5: Molecules &amp; Compounds</td>
<td>02/11 CH 5: Molecules &amp; Compounds</td>
<td>CH 4 – 02/05</td>
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<td>02/18 CH 6: Chemical Composition</td>
<td>02/15 CH 5: Molecules &amp; Compounds</td>
<td>CH 5 – 02/15</td>
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<td>02/25 CH 7: Chemical Reactions</td>
<td>02/20 CH 6: Chemical Composition</td>
<td>CH 6 – 02/22</td>
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<td>03/03 EXAM II (CH 5-7)</td>
<td>02/27 CH 7: Chemical Reactions</td>
<td>CH 7 – 02/29</td>
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<td>03/10 Spring Break</td>
<td>03/03 CH 8: Quantities in Chemical Reactions</td>
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<td>03/11 CH 8: Quantities in Chemical Reactions</td>
<td>03/12 Spring Break</td>
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<tr>
<td>03/17 CH 9: Electrons in Atoms and the Periodic Table</td>
<td>03/19 CH 9: Electrons in Atoms and the Periodic Table</td>
<td>CH 8 – 03/19</td>
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<tr>
<td>03/24 CH 10: Chemical Bonding</td>
<td>03/25 CH 9: Electrons in Atoms and the Periodic Table</td>
<td>CH 9 – 03/22</td>
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<td>03/31 CH 13: Solutions</td>
<td>03/26 CH 10: Chemical Bonding</td>
<td>CH 10 – 03/26</td>
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<tr>
<td>04/07 CH 14: Acids and Bases</td>
<td>04/02 EXAM III (CH 8-10, 13)</td>
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<tr>
<td>04/14 CH 14 Acids/Bases</td>
<td>04/09 Easter Holiday</td>
<td>CH 13 – 04/01</td>
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<tr>
<td>CH 12 Liquids, Solids, &amp;</td>
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<td>CH 14 – 04/11</td>
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<tr>
<td>Intermolecular Forces</td>
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<td>Last Assignment-04/25 -</td>
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<tr>
<td>04/21 CH 11 Gases</td>
<td>04/16 CH 12 Liquids, Solids, &amp;</td>
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<tr>
<td>CH 15 Equilibrium</td>
<td>Intermolecular Forces</td>
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<td>04/28 EXAM IV</td>
<td>04/17 CH 12 Equilibrium</td>
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<td>(everything since Exam III)</td>
<td>04/23 CH 17 Radioactivity &amp;</td>
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<td>Nuclear Chemistry (material on final exam)</td>
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<td>05/05 Final Exam 8:00-10:30 a.m.</td>
<td>04/30 Finish any material &amp;</td>
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<td>Review for final exam</td>
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