CHEM 200.004  
Introduction to Chemical Principles  
Fall 2015

Instructor  
Kevin Smith  
Office: Neckers 285  
Phone: 618-453-6471  
Office Hours: by appt.  
e-mail: ksmith@chem.siu.edu

Required Materials:  
CONNECT subscription  
i-clicker Classroom Performance System  
Non-programmable scientific calculator (cannot use cell phone, watch, tablet, laptop on exams)

Course Meetings: MWF 3:00-3:50pm, Neckers 240

Course Description  
“Introduction to Chemical Principles” is a first year, freshman-level chemistry course for science, engineering and pre-professional majors. The math background necessary for this course is equivalent to that obtained in college algebra, precalculus or an advanced high school algebra course. **The student must have a nonprogrammable scientific calculator – you will not be allowed to use the calculator on your cell phone.**

This course must be taken concurrently with Chemistry 201 and CHEM 202 (with the exception of engineering students who have been issued an override by the College of Engineering). If you are repeating the course and have passed the laboratory within the last two years (at SIUC only), you may be excused from 201.

Course Objectives: The course is designed to meet four major objectives. These are to provide the student with the following tools:

1. An understanding and appreciation for the fundamental concepts of chemistry. The topics to be discussed are listed in Course Content. The material is presented at a level suitable for those students who will be majoring in one of the sciences.
2. A logic-based, problem solving approach that can be consistently applied.
3. An understanding of how these fundamental chemical concepts can be applied to everyday life and to current problems of relevance in the world.
Grading: Letter grades will be assigned as follows.

A  85 – 100%;  B  75 – 84%;  C  65 – 74%;  D  55 – 64%;  F  0 – 54%

For all students enrolled in the Structured Learning Workshop (CHEM 202), the final grade for both CHEM 200 and CHEM 202 will be based on the total points accumulated from the following sources:

- Structured Learning Workshop Average (CHEM 212) 10%
- Assigned On-Line Homework Average 5%
- i>clicker In-Class Response Average 10%
- Exam Average 50%
- Final Exam 25%

For Engineering Majors who have been issued an override by the College of Engineering and are not registered for CHEM 202, the final grade for CHEM 200 will be based on the total points accumulated from the following sources (Note: withdrawal from CHEM 202 at any point during the semester will also result in the following grading scheme being utilized):

- Assigned On-Line Homework Average 5.5%
- i>clicker In-Class Response Average 11.1%
- Exam Average 55.6%
- Final Exam 27.8%

This grading policy will be strictly enforced. Note that the university policy regarding incompletes states: An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. In other words, an INC will not be given to a failing student to prevent receiving an F. The deadline for dropping this course without a grade is Sun., Nov. 1st.

Structured Learning Workshop Average: All students (with the exception of engineering students who have been issued an override by the College of Engineering) are required to register for CHEM 202 and attend one 50-minute structured learning workshop (SLW) each week. The SLWs will be held in the Chemistry Computer Lab located in Neckers 118. The SLWs are lead by teaching assistants who will proctor the assigned homework and be available to assist students when questions arise. No makeup sessions for SLW will be allowed, and students may only earn SLW points during their registered section. The lowest SLW session will be dropped from the calculated average. Because past students who completed the SLW have demonstrated significantly improved CHEM 200 performance, all engineering students are strongly encouraged to register for CHEM 202. The last day to add a course without a Dean’s signature is Sun. August 30th.

Assigned On-Line Homework Average: Homework will be assigned and graded throughout the course via D2L (SIU online). These questions are assigned to provide additional opportunity for practice and allow for mastery of the material covered in this course. No late or make-up homework sessions are allowed. The lowest two homework scores will be dropped from the calculated average. Students should anticipate 1 homework assignment per chapter.
**i>clicker In-class Response Average:** During each class period questions requiring student response through i>clicker will be presented. 1 points will be awarded if the question is answered correctly, ½ point will be awarded for incorrect answers, and 0 points will be awarded for no answer. Students may only earn i>clicker points during their registered section. **Because each student earns points toward their final course grade using the i>clicker, instances when a student brings another student’s i>clicker to lecture will be considered academic dishonesty, which will be promptly reported to students’ academic advisor(s).**

**Exams:** The exams will be given in class as designated on the schedule. Please note that the schedule is tentative and may be changed by the instructor at any time. **No makeup exams will be given.** Students are required to take the exam during their registered lecture section. Students will be allowed to drop the lowest exam score. **You will not be allowed to take the exam if you show up late on the exam date.** You will not be allowed to bring any notes into the examination. Relevant constants and equations will be provided. **Any information brought into the examination through notes, through programmable calculators, phones, watches, tablets, or laptops constitutes academic dishonesty. Any form of cheating will result in judicial proceedings in accordance with Southern Illinois University’s policy on academic dishonesty.**

**Final Exam:** The final exam is comprehensive. The final exam date and time is TBD. **Any student who does not take the final exam will receive a zero for the final exam grade.** According to university policy, students who find they have more than three examinations on one day may petition, and students who have two examinations scheduled at one time should petition their academic dean for approval to take an examination during the makeup examination period on the last day.

**SIU Online:** Course content will be available through the online.siu.edu website. Students will need to refer to this website frequently to receive important information. The website can only be accessed by students registered for the course. The website will contain the syllabus, a calendar, i>clicker and exam grades and keys, lecture slides, and useful links.

**Course Content:** Any information in the reading assignments may show up on in-class questions or exams. However, the most important concepts, as discussed in the lectures and stressed in the CONNECT homework sets and the suggested end-of-chapter problems, will dominate the question/exam material so it is to the students benefit to attend classes and SLWs regularly and work these problems.

**Notes:**
1) Changes in the syllabus can be made and students will be informed of any substantial changes concerning exams, grading and/or changes to reading or homework assignments.
2) Cell phones, smart phones, iphones or other digital devices **must be turned off** and/or in silent mode during class. Students engaged in disruptive behavior such as texting, web surfing or game play will be asked to leave the class. Repeat offenses will result in removal from the class. If you must leave the room to answer a call, please do so quietly.
<table>
<thead>
<tr>
<th>Week of</th>
<th>M</th>
<th>W</th>
<th>F</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/24</td>
<td>Ch 1</td>
<td>Ch 1</td>
<td>Ch 1</td>
<td>Matter, States, Approach, Problems, Conversions, Measurements, Sig</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Figs</td>
</tr>
<tr>
<td>8/31</td>
<td>Ch 1,2</td>
<td>Ch 2</td>
<td>Ch 2</td>
<td>Atomic View, Atomic Theory, Atomic Model, Isotopes, Periodic Table</td>
</tr>
<tr>
<td>9/07</td>
<td>Ch 2</td>
<td>Ch 2</td>
<td>Ch 3</td>
<td>Electron Config, Bonding, Ionic, Covalent, Naming, Molecular Mass,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mixtures, Mole</td>
</tr>
<tr>
<td>9/14</td>
<td>Labor Day</td>
<td>Ch 3</td>
<td>Ch 3</td>
<td>Mole, Balancing, Limiting Reagent, Yields, Solution Stoichiometry</td>
</tr>
<tr>
<td>9/21</td>
<td>Ch 3</td>
<td>Exam 1</td>
<td>Ch 4</td>
<td>Solution Stoichiometry, Aqueous, Ionic Reactions</td>
</tr>
<tr>
<td>9/28</td>
<td>Ch 4</td>
<td>Ch 4</td>
<td>Ch 4</td>
<td>Ionic Reactions, Precipitation, Acid/Base, Redox, Oxid Numbers,</td>
</tr>
<tr>
<td>10/05</td>
<td>Ch 5</td>
<td>Ch 5</td>
<td>Ch 5</td>
<td>Pressure, Gas Laws, Ideal Gas Law, Density, Molar Mass</td>
</tr>
<tr>
<td>10/12</td>
<td>Fall Break</td>
<td>Ch 5</td>
<td>Exam 2</td>
<td>Kinetic Model</td>
</tr>
<tr>
<td>10/19</td>
<td>Ch 6</td>
<td>Ch 6</td>
<td>Ch 6</td>
<td>Energy, Heat, Enthalpy, Exo/Endothermic, Calorimetry, Hess’s Law, ΔH calc.</td>
</tr>
<tr>
<td>10/26</td>
<td>Ch 6,7</td>
<td>Ch 7</td>
<td>Ch 7</td>
<td>Light, Spectra, Wave-Particle, Heisenberg, Orbitals</td>
</tr>
<tr>
<td>11/02</td>
<td>Ch 7</td>
<td>Ch 7,8</td>
<td>Ch 8</td>
<td>Quantum numbers, Energy Levels, Quant.-Mech. Model, Electron Config.</td>
</tr>
<tr>
<td>11/09</td>
<td>Ch 8</td>
<td>Ch 8</td>
<td>Exam 3</td>
<td>Electron Config., Periodic Trends, Properties</td>
</tr>
<tr>
<td>11/16</td>
<td>Ch 9</td>
<td>Ch 9</td>
<td>Ch 9</td>
<td>Ionic Bonding, Lattice, Covalent Bonding, Bond Energy, Electronegativity, Polarity</td>
</tr>
<tr>
<td>11/23</td>
<td>Ch 10</td>
<td></td>
<td>Happy Thanksgiving</td>
<td>Lewis Structures, Resonance</td>
</tr>
<tr>
<td>11/30</td>
<td>Ch 10</td>
<td>Ch 10</td>
<td>Ch 11</td>
<td>VSEPR, Shapes, Polarity, VB Theory</td>
</tr>
<tr>
<td>12/07</td>
<td>Ch 11</td>
<td>Ch 11</td>
<td>Exam 4</td>
<td>Hybridization, Single/Multiple Bonds, MO Theory</td>
</tr>
<tr>
<td>12/14</td>
<td></td>
<td></td>
<td>Final TBD</td>
<td></td>
</tr>
</tbody>
</table>
CHEM 202
Introductory Chemistry Workshop
Fall 2015

**Required Materials**

- CONNECT subscription
- Non-programmable scientific calculator, with log and ln functions (do not use cell phone, tablet, or laptop)
- A notebook (spiral or bound)

**SIUOnline** is used for distribution of additional course materials.

**Course Description:** CHEM 202 is a weekly 50-minute structured learning workshop (SLW) study session that accompanies CHEM 200. The SLWs meet in the Neckers 118 computer laboratory lead by a dedicated teaching assistant who will proctor the assigned homework and be available to assist students when questions arise. Concurrent enrollment in CHEM 200 is required.

**In order to attend the workshop, students are REQUIRED to register for CHEM 202. Students must attend the workshop they are registered.**

Because past students who completed the SLW have demonstrated significantly improved CHEM 200 performance, all engineering students are strongly encouraged to register for CHEM 202. The last day to add a course without a Dean’s signature is Sun. August 30th.

**Grading:** The final grade for both CHEM 200 and CHEM 202 will be the same. The assignments completed in CHEM 202 are a portion of the each student’s CHEM 200 letter grade, and each student’s CHEM 202 letter grade will be assigned the same letter grade earned in CHEM 200.

No makeup sessions for SLW will be allowed, and you must attend your registered SLW session. The lowest SLW assignment grade will be dropped from the calculated average.

**Notes:**
1.) Active participation in the workshop leads to better understanding of the material. It is critical that students not only try to get the right answer, but also understand why their right answer is correct.
2.) Students should bring a spiral or bound notebook to each workshop to write their work and take notes while completing the workshop material. Students can expect the TA or instructor will request to see their work when discussing workshop material.
3.) Students engaged in disruptive behavior such as texting, web surfing or game play will be asked to leave the class. Repeat offenses will result in removal from the class. If you must leave the room to answer a call, please do so quietly.