CHEM 106L: Chemistry Survey Lab (1 Credit)
South Dakota School of Mines and Technology
Fall 2007

Coordinator: Zhengtao Zhu;
Office: Chemistry and Chemical Engineering 316;
Phone: 394-2447;
Email: Zhengtao.Zhu@sdsmt.edu
Office Hours: Monday, Wednesday, 2:00-3:30 PM; Thursday 1:00-2:00 PM; or by appointment.

Teaching Assistant: Ramya Chandrasekar

Time/Location: Section M051: Tuesday 01:00PM - 03:50PM, Chem-Chem Engr Building, Room 207.
Section M052: Thursday 01:00PM - 03:50PM, Chem-Chem Engr Building, Room 207.

Course Objective and Outcomes: Students will learn common chemical laboratory safety practices and the experimental methods used in investigating and analyzing the properties and the behavior of matter.

• Understand the basic concept of chemical experiments.
• Understand the distinction between qualitative and quantitative analysis.
• Identify sources of error in chemical experiments.
• Interpret experimental results and draw reasonable conclusions.
• Analyze data in terms of the precision and accuracy of results.
• Learn the importance of performing accurate and precise quantitative measurements.
• Learn and understand laboratory safety procedures.
• Keep complete experimental records.
• Reinforce and apply the knowledge learned in CHEM106.

Require Text And Equipment:
2. Lab notebook.
3. Approved safety goggles, which must be worn at all times while in the laboratory. The goggles can be purchased in SDSMT bookstore.
4. A calculator.

Course Policies:

Attendance: Attendance in lab is required, but if circumstances beyond your control cause you to miss a lab, then one makeup lab is provided at the end of the semester. Note the makeup lab is permitted only for those students who have obtained an excused absence, in person, from the lab coordinator (this is Dr. Zhengtao Zhu, not your lab TA). An excusable reason includes school activities, illness requiring medical treatment, or death in immediate family. In any case, the student needs to bring the appropriate document to the instructor prior to the scheduled lab time. One makeup lab is scheduled in the week of Dec. 10-14. The detailed time and location of the make-up lab will be announced.
Lab Safety: Safety is an extremely important issue in chemistry lab and chemistry research. Students should know and follow the safety procedures during their lab sections. If you have any question regarding to lab safety, please talk to your TA, chemical materials manager Kris Grinnell (C101, kris.grinnell@sdsmt.edu, 394 2442) or me. For your safety, goggles are required all the time in the lab. No shorts, no sandals, no drink/food, and no contact lenses are allowed in the lab. No notebook PC is allowed to use during your lab section.

Fine for Failing to Check-in or Return Key: All students who have checked out a lab locker are required to check the locker in at the end of the semester or earlier if withdrawing from the course. A fine of $30.00 is assessed for failure to check-in and $100 for failure to return your locker key. If circumstances force you to withdraw from the lab before the end of the semester, you should make arrangements with your lab instructor or the storeroom manager (Kristina Grinnell) to check in your locker in order to avoid the fines.

Assessment/Grading: Your grade for the course will be based on a total possible score of 550 points, calculated as follows:

- Prelab questions* 10 points
- Lab record and observation 5 points
- Data collection and calculation 20 points
- Conclusion 5 points
- Postlab questions 10 points
- Total points for each lab 50 points
- Total points of 11 labs 550 points

* Prelab quiz may be given before the experiment starts. The prelab quiz will be unannounced and will be included in your prelab points.

Withdrawal Deadline: The last day to drop this class with a grade of “W” recorded on your transcript is November 19th.

ADA Statement: Students with special needs or requiring special accommodations should contact the instructor, (Zhengtao Zhu at 394-2447) and/or the campus ADA coordinator, Jolie McCoy, at 394-1924 at the earliest opportunity.

Electronic Devices Policy: Please turn off your cell phone before your section starts. No text messaging in class. No headphones. No other use of any other electronic/computer media is allowed during lab time.

Academic Honesty: Any cheating as defined by the student code of conduct is not tolerated in this course. See http://sdmines.sdsmt.edu/sdsmt/studentconduct/main regarding the student code of conduct. Cases of cheating will be handled on a case to case basis as defined in the student code of conduct. Note that according to “Policy Governing Academic Integrity” in the SDSM&T Undergraduate Catalog, the instructor of record for this course has discretion of how acts of academic dishonesty are penalized, subject to the appeal process, and that “Penalties may range from requiring the student to repeat the work in question to failure in the course” (72-73).

Freedom in Learning: Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. Students who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards should contact the dean of the college which offers the class to initiate a review of the evaluation.
**Lab Schedule:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Experiment</th>
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<tr>
<td>Sept. 4-7</td>
<td>no lab</td>
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<tr>
<td>Sept. 10-14</td>
<td>lab check-in; safety training;* locker and key check-out</td>
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<tr>
<td>Sept. 17-21</td>
<td>Exp. 1: Laboratory Technique</td>
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<td>Sept. 24-28</td>
<td>Exp. 2: Density Determination</td>
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<td>Oct. 1-5</td>
<td>Exp. 3: Separation of the Components of a Mixture</td>
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<td>Oct. 8-12</td>
<td>Exp. 8: Chemical Properties of Consumer Products</td>
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<td>Oct. 15-19</td>
<td>Exp. 6: Determination of the Formula of a Metal Oxide</td>
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<td>Oct. 22-26</td>
<td>Exp. 12: Properties of Gases</td>
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<td>Oct. 29-Nov. 2</td>
<td>Exp. 13: Physical Properties of Chemicals</td>
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<td>Nov. 5-9</td>
<td>Exp. 14: Solubility and Solution</td>
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<td>Nov. 12-16</td>
<td>Exp. 15: Water of Hydration</td>
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<td>Nov. 19-23</td>
<td>No lab</td>
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<td>Nov. 26-30</td>
<td>Exp. 16: Factors Affecting Reaction Rates</td>
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<td>Dec. 3-7</td>
<td>Exp. 19: Analysis of Vinegar by Titration</td>
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<tr>
<td>Dec. 10-14</td>
<td>Locker check-in and Make-up lab: Analysis of Antacid Tablets</td>
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<tr>
<td>Dec. 17-21</td>
<td>Final week, no lab</td>
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* The student is not allowed to carry out any experiment in the lab without attending the safety training section during the week of Sept. 10-14.