CHEM 112L:
General Chemistry I lab
South Dakota School of Mines and Technology
Fall 2011
1 Credit Hour

Instructor: Joseph Marshall
Office: Chemistry Building 308
Phone: 605-394-1679
E-mail: Joseph.Marshall@sdsmt.edu
Office Hours: TBA and by appointment

<table>
<thead>
<tr>
<th>Section Meeting Times</th>
<th>8/29/11 – 12/16/11</th>
<th>Chem 114 (new wing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 112L –M051</td>
<td>Monday</td>
<td>11:00 AM to 1:50 PM</td>
</tr>
<tr>
<td>Chem 112L –M052</td>
<td>Monday</td>
<td>2:00 PM to 4:50 PM</td>
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<tr>
<td>Chem 112L –M053</td>
<td>Tuesday</td>
<td>8:00 AM to 10:50 AM</td>
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<tr>
<td>Chem 112L –M054</td>
<td>Wednesday</td>
<td>8:00 AM to 10:50 AM</td>
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<tr>
<td>Chem 112L –M055</td>
<td>Wednesday</td>
<td>11:00 AM to 1:50 PM</td>
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<tr>
<td>Chem 112L –M056</td>
<td>Wednesday</td>
<td>2:00 PM to 4:50 PM</td>
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<tr>
<td>Chem 112L –M057</td>
<td>Thursday</td>
<td>2:00 PM to 4:50 PM</td>
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<tr>
<td>Chem 112L –M058</td>
<td>Friday</td>
<td>8:00 AM to 10:50 AM</td>
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<tr>
<td>Chem 112L –M059</td>
<td>Friday</td>
<td>11:00 AM to 1:50 PM</td>
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Catalog Description: Laboratory designed to accompany CHEM 112.

Course Prerequisites or Co-requisite: CHEM 112 General Chemistry I. You will be required to drop the CHEM 112L lab if you withdraw from concurrent enrollment in CHEM 112 lecture, and have not previously passed CHEM 112.

Instructional Methods: Pre-laboratory discussion and "hands-on" experiment.

Required textbook and other materials:
1. Manual: General Chemistry I Lab - CHEM112L (available at Tech. Bookstore.)
2. Approved safety goggles, which must be worn at all times while in the laboratory.
3. A calculator.
4. A Computer or Tablet for selected labs.

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 instructor or chemical materials manager Margaret Smallbrock (C123, Margaret.Smallbrock@sdsmt.edu, 605- 394-1236.)

For your safety, departmentally approved goggles are required at all times in the lab. No shorts, no sandals, no drink/food, and no contact lenses are allowed in the lab. Students arriving without proper attire will be turned away. Students bringing food or drink into the lab will also be asked to leave for the day. Leave these items in the hallway.
Further information will be provided during the check out day safety lecture. Students will not be allowed to work in the lab until they have checked in to a lab equipment drawer and seen the safety presentation.

Class attendance policy: Attendance in pre-lab discussion and lab is mandatory. Tardiness may result in not being allowed to complete the lab work.

Make-up policy: One make-up lab (i.e. Computational Chemistry III) is provided at the end of the semester if you miss one lab with a legitimate excusable reason.

Please note that the make-up lab is granted only for those students who have obtained an excused absence from the lab instructor. A legitimate reason, as determined by the instructor, includes school sponsored activities, illness requiring medical treatment, death in immediate family, or military obligations. In any case, the student needs to bring the appropriate documentation to the instructor prior to the scheduled lab time.

The grade given on the make-up lab will replace the zero for the lab absence. The make-up lab is scheduled for the last day that your lab section meets.

*There is only one (1) make up lab. Missing more than one lab for any reason will result in a score of zero (0) for the extra missed labs. Students missing 3 labs or more are not likely to pass the course. Each lab is about 10% of your grade, which is about a letter grade.*

Pre-laboratory questions for each experiment are due and collected at the beginning of the lab period during which the experiment is carried out. Students who are turned away for not having the pre-lab questions done will receive a grade of zero (0) for the lab that they miss.

*If the instructor deems you have not prepared yourself properly for the lab you are about to do, they may ask you to leave and you will receive no credit for that period’s lab.*

Cheating and plagiarism policy: Any cheating as defined by the student code of conduct will not be tolerated in this course. See http://sdmines.sdms.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. Please 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).

Any student who “dry labs” an experiment will be dismissed from the course with a grade of “F.” To dry lab consist of: (a) borrowing of data from another student, (b) pretending to complete one or more of the laboratory activities, (c) making up data, etc.

Possession of data from previous semesters or other unauthorized outside sources will result in dismissal from the course with a grade of “F.”

Course Goals and Student Learning 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 CHEM112.

**Evaluation Procedures:** Final grades are determined based on the total points earned out of the 550 possible in the course.

- 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 for Course:**
- Total points of 10 at 50 points each: 500 points
- Discretionary Points: 50 Points

**Total Course Points:** **550 Points**

Once your cumulative total has been calculated, grades are assigned according to the following scale:

- A ≥ 90.0%
- B ≥ 80.0%
- C ≥ 70.0%
- D ≥ 60.0%
- F < 60.0%

These levels may change, but they will not increase.

**Discretionary Points:** There will also be 50 discretionary points. These points are given to you at the beginning of the semester, but can be lost for a variety of reasons. For example, but not limited to: failure to obey laboratory safety rules, poor lab practice, tardiness, improper disposal of waste, and behavior that is distracting and unprofessional in the lab. Cases of academic dishonesty will result in loss of discretionary points.

## Tentative Course Schedule:

<table>
<thead>
<tr>
<th>Day of the week</th>
<th>Lab activity</th>
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</thead>
<tbody>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>9/12</td>
<td>Check in, safety presentation</td>
</tr>
<tr>
<td>9/19</td>
<td>Expt 1. Physical Properties of Matter*</td>
</tr>
<tr>
<td>9/26</td>
<td>Expt 9. Determining the Mole Ratios in a Chemical Reaction</td>
</tr>
<tr>
<td>10/3</td>
<td>STOI388: The Empirical Formula of an Oxide</td>
</tr>
<tr>
<td>10/17</td>
<td>Solubility rules</td>
</tr>
<tr>
<td>10/24</td>
<td>ANAL455: Separating and Determining the Mass of Calcium Ion in a Calcium-Enriched Tablet</td>
</tr>
<tr>
<td>10/31</td>
<td>Expt. 7: Acid-Base Titration*</td>
</tr>
<tr>
<td>11/7</td>
<td>Expt 19: Heat of Combustion of Magnesium</td>
</tr>
<tr>
<td>11/14</td>
<td>Computational Chemistry I*</td>
</tr>
<tr>
<td>11/21</td>
<td>Computational Chemistry II*</td>
</tr>
<tr>
<td>11/28</td>
<td>Expt 34: Vapor Pressure and Heat of Vaporization.*</td>
</tr>
<tr>
<td>12/5</td>
<td>Check out, make up lab*</td>
</tr>
</tbody>
</table>

Labs marked with * above REQUIRE tablet PC.

Subject to change.

**Fine for Failing to Check Out or Return Lock:** All students who have checked into a lab equipment drawer are required to check out of the drawer at the end of the semester or earlier if withdrawing from
the course. A fine of $30.00 is assessed for failure to check out and $30.00 for failure to return your lock. 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 (Margaret Smallbrock) to check out of your equipment drawer in order to avoid the fines. Fines are in addition to cost for missing or broken equipment. CHECK OUT IS MANDATORY!

**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 in the laboratory. No tablet/notebook PC use is allowed during your lab section except for the computational chemistry labs, and labs requiring tablet PCs. Tablets are NOT to be used on the lab benches with chemicals and/or equipment on them.

**ADA Statement:** Students with special needs or requiring special accommodations should contact the instructor (Joseph Marshall, 394-1679) and/or the campus ADA coordinator, Jolie McCoy, at 394-1924 at the earliest opportunity.

**Freedom in Learning Statement:** 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.

_Syllabus is subject to change_