Course Syllabus
CHEM 122L – General Chemistry II Laboratory
Spring 2014

1. Course Information

Teaching Assistant:
Email:
Office Hours: CB105

Head TA: Thomas Brown
Email: headta.chem@gmail.com

1.1 Course Description

This course provides the laboratory component to accompany CHEM 122A (General Chemistry 2 Lecture) in examining the fundamentals of chemistry including solutions, kinetics, equilibrium, thermodynamics, electrochemistry, nuclear chemistry, and properties of inorganic and organic compounds. This class may be used (along with CHEM 122A) to satisfy the University's Core Natural Science A requirement. Please also note that this course has a $20 lab fee.

**Prerequisites:** Completion (with passing grade) of CHEM 121A and CHEM 121L, MATH 127R (or higher recommended)

**Corequisites:** CHEM 122A

**Please note that CHEM 122A is a co-requisite of CHEM 122L. If you are enrolled in CHEM 122A and CHEM 122L, and you drop either course, you must also drop the other. If you do not, you will be administratively removed from the other course.**

1.2.1 Core Objective 4: Physical & Natural Phenomena

Students will be able to explain the processes by which the natural and physical world is investigated, articulate basic principles used to explain natural phenomena, and apply scientific processes to real problems using observational or experimental methods.

1.2.2 Core Objective 9: Science, Technology & Society

Students will be able to connect science and technology to real-world problems by explaining how science relates to problems of societal concern; be able to distinguish between sound and unsound interpretations of scientific information; employ cogent reasoning methods in their own examination of problems and issues; and understand the application of science and technology in societal context.

1.3 Student Learning Outcomes

Throughout and upon completion of the course, students will take personal responsibility for their learning and academic success. The following are Student
Learning Outcomes (SLOs), which every student may achieve by the completion of the course. Upon completion of this course:

1. Students will be able to practice safe laboratory and waste management techniques as they apply to the general chemistry setting. (CO9)
2. Students will be able to follow a guided inquiry experimental procedure, interpret experimental results, and draw reasonable conclusions. (CO9)
3. Students will be able to perform stoichiometric calculations for chemical reactions. (CO4)
4. Students will be able to convert between units using dimensional analysis. (CO4)
5. Students will be able to identify the connection between the material taught in the lecture course and the material covered in the laboratory. (CO4, CO9)
6. Students will be able to articulate and follow ethical principles in the laboratory context. (CO4)

1.4 Course Materials

→ **Lab Manual:** Catalyst Laboratory Manual for Chemistry 122 Laboratory, Custom Edition for Univ. of Nevada. Must be 2013 copyright edition.

→ **Goggles:** approved safety goggles are required. Goggles must make seal with face to provide splashing entering eye area. Safety Glasses are not approved for this course.

→ **Lab Coat:** a lab coat is also required for the experiments to be done.

1.5 Course Website: WebCampus

This course has a WebCampus page, to which you should have access as an enrolled student. The WebCampus page will be used to make announcements and to distribute course materials. You should check this site regularly for updates and information.

1.6 Graduate Teaching Assistants (TAs)

Each of the lab sections in CHEM 122L is taught by a graduate teaching assistant (TAs). Your TA will meet with you during the first scheduled lab to provide you with safety information and to supervise the check in procedure for lab equipment. In addition, your TA will relay his or her specific guidelines for performing the lab procedures and clean up. Your TA will also give you his or her specific preferences for the lab reports that you will turn in for each lab. Each TA has complete authority over his or her lab section therefore, it is important that you pay attention to what your TA has to say.

The TAs are provided with comprehensive grading keys that include point deductions for all lab reports. Although there will be deviations from one TA to the next with regard to lab report scoring, the overall grades of the sections will be monitored, compared, and normalized throughout the semester.

2. ChemHelp Center
A chemistry specific tutoring center is available for all CHEM 122 students to seek lecture and laboratory help. It is located on the first floor of the chemistry building in room 105. The hours and schedule can be found on WebCampus or at www.chem.unr.edu/intra (on campus access only). The staff (graduate TAs) will be available to assist with homework questions (MasteringChemistry), reviewing concepts, and working through practice problems. **They will not do student’s homework for them.** Using the ChemHelp Center early will greatly increase the student’s chances of being successful in this course. No appointments are necessary; walk-ins only.

### 3. Course Evaluation

#### 3.1 Point Distribution

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prelab Quizzes (10 pts each)</td>
<td>100 points</td>
<td>(18.2%)</td>
</tr>
<tr>
<td>Lab Reports (30 pts each)</td>
<td>300 points</td>
<td>(54.5%)</td>
</tr>
<tr>
<td>Final Exam</td>
<td>90 points</td>
<td>(16.4%)</td>
</tr>
<tr>
<td>Performance Evaluation</td>
<td>60 points</td>
<td>(10.9%)</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td><strong>550 points</strong></td>
<td></td>
</tr>
</tbody>
</table>

There is **no extra credit work available. All available points that are possible to earn are listed above.**

The instructor reserves the right to normalize laboratory scores in order to enforce equity in grading multiple laboratory sections of CHEM 122L.

#### 3.2 Tentative Grading Scale

The follow table shows the *tentative* grading scale for the lecture course. The full and finalized grading scale will be announced in lecture prior to the final exam.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percent of Points Earned out of Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 – 89 %</td>
</tr>
<tr>
<td>B+ to B−</td>
<td>88 – 79 %</td>
</tr>
<tr>
<td>C+ to C−</td>
<td>78 – 61 %</td>
</tr>
<tr>
<td>D+ to D−</td>
<td>60 – 50 %</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 50 %</td>
</tr>
</tbody>
</table>

#### 3.2 Lab Reports

Each experiment performed in the course is accompanied by a report that must be completed and turned in to the TA for credit. All reports include data sections, calculations, and post-lab questions and are due at the beginning of the next lab period; reports must be turned into the TA prior to the prelab quiz. Any report turned in following the prelab quiz, but before the lab period ends, will have a 25% deduction imposed on the points earned. If a lab report is turned in after the lab period that it is due, a 50% deduction will be imposed on the points earned. If a report is not
turned into the TA before the prelab quiz in the next lab period, no credit will be given for work done on that lab. Some reports also require creating plots using the data obtained from the experiment.

3.3 Prelab Quizzes

Starting with the second meeting of the laboratory class, prelab quizzes will be administered following an overview of the experiment presented by the TA. Each prelab quiz will be worth a maximum of 10 pts and will cover topics found in the reading for experiment.

3.4 Performance Evaluation

Students will earn Performance Evaluation points during each laboratory class period; a maximum of 5 points per laboratory class for a total of 60 overall points. These points represent the TAs evaluation of the skill, understanding, and performance of the individual students, including promptness and safety. Failure to arrive to class on time, perform the laboratory experiment with knowledge gained by reading the lab manual prior to the class, forgetting/losing locker combinations, or a lack of safety in the laboratory will result in deduction of performance evaluation points for that day.

3.5 Final Exam

On the last day the laboratory class will meeting, a final examination will be administered. The final exam is worth a maximum of 90 pts and will cover topics from all experiments performed in the course. The questions will focus on the techniques utilized to obtain data and the plots created and calculations performed with the data obtained.

4. Laboratory Attendance, Safety, Behavior, and Attire

4.1 Laboratory Attendance

→ Laboratory attendance is mandatory. The TAs will record attendance for each lab period and report it to Dr. Munro.
→ If you miss the first lab period (check-in), your seat in that lab section will be forfeited and you must drop the course. If you do not drop the course, you will receive a “F” for your course grade.
→ There are no make-up labs. If you have an excused absence – one in which you have shown your TA or Dr. Munro valid, documentation – you will be given the chance to earn points on the lab report for the experiment you were absent. If you have an unexcused absence, you will receive a score of zero points on your lab report and participation grade for that lab period.
→ More than two missed lab periods will result in failure of the course. This is true for excused and unexcused absences alike. If you miss three lab periods, you will receive an “F” for your course grade.

4.2 Laboratory Safety

**All students are required to read the document "Safety Information for
Students in Undergraduate Chemistry Laboratory Courses" (http://www.chem.unr.edu/safety/information.php) and take the safety quiz corresponding to this information. The quiz can be found on WebCampus and you must receive an 80% or better in order to pass the quiz. You are allowed two attempts; you will not be able to participate in lab if this quiz is incomplete. Your TA will provide more details at the first lab meeting.

→ The biggest safety concern that we have in lab is that any lab surface may be contaminated with chemicals. It is easy to pick up chemical contamination on your hands without even realizing it, and then something as simple as absent-mindedly rubbing your eye can result in excruciating pain and permanent damage to the eye. **Always wear goggles in the lab.** Besides protecting your eyes from broken glass or chemical splashes, wearing goggles also prevents absent minded eye rubbing. Make sure you wash your hands before taking off your goggles and before leaving the lab.

→ The second biggest safety concern that we have in our laboratories is broken glass. Glass breaks every week. Small pieces may fly through the air (so always wear goggles) and large pieces fall downward. **So, always wear a lab coat and close-toed shoes to lab.** Sandals, clogs, and open-toe shoes are not allowed in lab. You will not be permitted to work in lab without goggles, a lab coat, and close-toed shoes, and you will receive a “zero” for that day's experiment.

→ On the first day of lab, your TA will show you around the lab and point out various pieces of safety equipment, which include a safety shower, eyewash fountain, and fire extinguishers. Make sure you know the location of the nearest emergency exits. **In the event of an accident, do not panic. Call your TA immediately for assistance. He or she will help you resolve the situation.**

→ **Keep your work area uncluttered.** Your TA will tell you where to store backpacks and coats.

→ **No eating or drinking is allowed in the laboratory at any time.** Never put anything in your mouth while in the lab.

→ Dispose of all chemical waste into the DESIGNATED WASTE CONTAINERS located in the fume hoods. **NEVER** pour any chemicals down the drain. Your TA will describe which waste goes in which container during each lab session.

→ The General Chemistry stockroom is located in room DMS 404. Any time you need a piece of equipment, you will get it from the stockroom. Make sure you sign your name on the checkout list when you check out the equipment and cross your name off the list when you return the equipment. Clean any borrowed equipment before you return it. You are financially responsible for any equipment checked out to you, including the equipment in your lab drawer.

→ If you drop the class after checking in to a drawer, you are required to check out your equipment drawer before the end of the semester. If you fail to check out on time, a hold will be placed on your registration.

### 4.3 Laboratory Behavior

→ **Assigned safety questions must be turned in prior to starting to work in the laboratory** (see section 3.2 for information on where to find the safety questions). Any student not completing assigned safety questions before the first experiment
will not be allowed to work in the laboratory, resulting in a score of “zero” for that day.

→ If you are more than 20 minutes late to lab, you will not be permitted in to the lab, and you will receive a “zero” for that day's work.

→ If you leave the lab early, without permission from your TA, you will receive a “zero” for the lab report for the experiment performed that day.

→ Do not leave the lab during the lab procedure for any reason unless you have permission from your TA.

→ Do not enter the lab until your TA arrives. This is a safety policy (see below).

→ Disruptive and/or unsafe behavior will not be tolerated: cell phones, smart phones, iPods, iPads, laptops, etc., should all be muted or turned off prior to entering class. Answering phone calls or other disruptive/unsafe behavior will result in removal from the classroom and possible dismissal from the course.

4.4 Laboratory Attire

→ All persons in the laboratory shall wear goggles with impact and splash protection whenever any chemicals or experimental equipment are in use or on the benches anywhere in the laboratory. Therefore, the goggles must not only be made from rigid plastic, but also make a splash proof seal with the skin on your face.

→ Students who are asked more than twice (in one lab period) to put their goggles on or follow any other safety procedure will be dismissed from the lab for that period. The student will not be allowed to make up that lab and will receive a "zero" for that experiment. More than two "zeros" means failure of the course.

→ Lab coats must also be worn for further protection.

→ Closed-toed shoes must be worn in the laboratory; open sandals or bare feet are forbidden in the laboratory. Shoes must cover the entire foot and be completely enclosed.

→ Individuals with long hair must tie it back to keep it away from fire, chemicals, and moving equipment.

→ Bracelets, necklaces, neckties, and similar loose items of attire may create a hazardous situation and so they must be confined or not worn in the laboratory.

→ Students will not be allowed to enter the laboratory if not properly clothed and will receive a "zero" for that day's experiment and will not be allowed to make it up.

5. Email Etiquette

Emails sent to any university employee (the course Instructor OR the lab TA) should be written as and thought of as a professional (business) email. Therefore, the following guidelines should be followed:

1. Include the course information in the subject line (e.g. “CHEM 122L”).
2. Include a salutation (e.g. Dr., Prof., Mr., Ms., Mrs., etc.).
3. Write complete sentences
4. Do not use “texting English.”
6. University Policies

6.1 Academic Dishonesty

A student’s continued enrollment in the course implies that they have read and are familiar with the Student Code of Conduct and Policies of the University Nevada, Reno. The following definitions and possible courses of action concerning academic dishonesty are taken from Section 8.3 of the University Catalog and can be found online at: http://catalog.unr.edu/

Academic dishonesty is against university as well as the system community standards. Academic dishonesty is defined as: cheating, plagiarism or otherwise obtaining grades under false pretenses. Plagiarism is defined as submitting the language, ideas, thoughts or work of another as one's own; or assisting in the act of plagiarism by allowing one's work to be used in this fashion. Cheating is defined as (l) obtaining or providing unauthorized information during an examination through verbal, visual or unauthorized use of books, notes, text and other materials; (2) obtaining or providing information concerning all or part of an examination prior to that examination; (3) taking an examination for another student, or arranging for another person to take an exam in one's place; (4) altering or changing test answers after submittal for grading, grades after grades have been awarded, or other academic records once these are official.

Any form of academic dishonesty will not be tolerated in this class. Disciplinary procedures for incidents of academic dishonesty may involve both academic action and administrative action for behavior against the campus regulations for student conduct. The minimum penalty for academic dishonesty is an F in the course. A student found responsible for violating this policy may not withdraw from the course in question. A student failed in a course due to academic dishonesty may not utilize the
“repeat option” for that course. See The Student Handbook and UNR Catalog for rules about and sanctions for academic dishonesty.

6.2 Students with Disabilities Act

The Department of Chemistry and the University of Nevada, Reno support providing equal access for students with disabilities. Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the Disability Resource Center as soon as possible to arrange for appropriate accommodations. The contact information for the Disability Resource Center is:

Disability Resource Center
Thompson Building, Suite 100.
Phone: 775-784-6000
Website: http://www.unr.edu/drc

6.3 Academic Success Services

Student fees at UNR cover usage of the Math Center (784-4433 or http://www.unr.edu/mathcenter/), Tutoring Center (784-6801 or http://www.unr.edu/tutoring-center/), and University Writing Center (784-6030 or http://www.unr.edu/writing-center/). These centers support classroom learning; **it is the student’s responsibility to take advantage of their services. Additionally, see section 2 for Chemistry Help Room description. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.**

6.4 University Attendance Policy

**Student Absences:** By the Nevada System of Higher Education (NSHE) policy in Title 4 Chapter 20 A, Section 3, paragraph 1, there are no official absences from any university class. **It is the personal responsibility of the student** to consult with the instructor regarding absences from class. In the event that a student misses a class because of an official university function or event or because of serious personal issues, the Office of the Vice Provost for Student Services may, at its discretion, send an explanation to affected faculty. The instructor shall make the final determination on whether the missed work can be done at a time other than during the regularly scheduled class period.

**Religious Holy Days:** It is the policy of NSHE in Title 4 Chapter 20 A, Section 3, paragraph 2, to be sensitive to the religious obligations of its students. Any student missing a classes, quizzes, examinations, or any other class or lab work because of observance of religious holy days should, whenever possible, be given an opportunity
during that semester to make up the missed work. The make-up will apply to the religious holy day absence only. It shall be the responsibility of the student to notify the instructor in advance in writing, if the student intends to participate in a religious holy day which does not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the assignment at an alternate time would impose an undue hardship on the instructor or institution which could not reasonably have been avoided.

6.5 Surreptitious and Covert Video and Audio Recording

Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.