Course Syllabus
CHEM 202 – General Chemistry I for Scientists and Engineers
Spring 2015

1. Course Information

Instructor: Dr. Lyndsay Munro
Office: CB 122
Email: lmunro@unr.edu
Office Hours: M/Th 2:00 – 3:30pm and by appointment

Supplemental Instructor:
Jonathon Watterson

Learning Assistants:
Shaun Braly  - email: sbraly64@yahoo.com  chemhelp (CB316A): Th/F 1-2pm
Daryn Marsh  - email: dcm_27@yahoo.com  chemhelp (CB316A): T/Th 11-12pm

Lecture: 11:00 – 11:50 am MWF in OSN102
Course Website: WebCampus

Laboratory:
Section 1112: T 8 – 10:50am DMS 401
Section 1121(H): M 1 – 3:50pm DMS 401
Section 1123: W 1 – 3:50pm DMS 401
Section 1124(WiSE): R 1 – 3:50pm DMS 401
Section 1131: M 6 – 8:50pm DMS 401

Teaching Assistants:
Travis Cournoyer  - email: tcournoyer098@gmail.com  chemhelp (CB316A):
Alissa Backman  - email: alissab@unr.edu  chemhelp (CB316A):
Tom Brown  - email: tmbrown@unr.edu  chemhelp (CB316A):

1.1 Course Description

CHEM 202 is the second semester of a two-semester course designed for science and engineering students whose academic plans require advanced study in chemistry. This is a rigorous course that will challenge you to not only study the fundamentals of chemistry, but to answer the “how and why” questions that arise in chemistry. We will use more advanced concepts that will require a strong math background. Topics include Thermodynamics, Chemical Kinetics, Chemical Equilibrium, Electrochemistry, Acids and Bases, Properties of Solutions, and Coordination Chemistry. Additional topics including blood buffers (CH 8), batteries, fuel cells and corrosion of metals (CH 11), metal alloys, transistors, circuits, and nanotechnology (CH 16), the boiling/freezing
point of liquids, water purification, and osmosis (CH 17), nuclear power, and radioactivity (CH 19), and magnetism (CH 20) will be covered enabling students to connect science and technology to real-world problems (CO9).

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:

1. Students will be able to assign oxidation states, balance and apply concepts of free energy to redox equations. (CO4)
2. Students will be able to identify different types of acids and bases. (CO4)
3. Students will be able to solve problems in aqueous equilibrium and acid/base chemistry, and apply concepts of free energy to the equilibrium reactions. (CO4, CO9)
4. Students will be able to explain how temperature, pressure and other atmospheric conditions affect reaction equilibria and kinetics. (CO4, CO9)
5. Students will be able to describe the fundamental properties of solids, liquids and gases and phase transformations between them. (CO4, CO9)
6. Students will be able to have a working knowledge of basic laboratory techniques, such as titrations and pH measurements. (CO4, CO9)
7. Students will be able to articulate and follow ethical principles in a laboratory context.
8. Students will be able to connect chemical principles to real-world problems by analyzing scientific data related to a problem of societal or technological concern. (CO9)

1.3 Laboratory
Laboratory attendance is mandatory. Students must bring approved safety goggles with impact and splash protection for the laboratory. Students must also wear a lab coat. The laboratory is an integral part of CHEM 202. Missing more than two
laboratories results in a failing grade. *A failing grade in the laboratory will result in a failing grade for the course, regardless of your performance in the lecture.*

1.4 Course Materials

**Required Texts and Materials:** (available at the UNR Bookstore)

**Textbook:**  
*Chemical Principles*, 7th ed., by Zumdahl and Decoste

**Laboratory Manual:**  

- OWL on-line CHEM 202 Homework Access
- **Non-programmable** scientific calculator (able to perform logarithms, exponentials, and scientific notation). Some examples available at the UNR Bookstore, TI-30X II S or the TI-30X A. Check with Dr. Munro if unsure.

**NOTE:** You are responsible for determining how to log into WebCampus and OWL and to learn how to use the site. Dr. Munro is not available to provide IT support.

1.5 Course Website: WebCampus

The course website on WebCampus will be updated regularly. On this site, I will post general announcements, exam keys, grades, study guides, and supplemental information. **It is your responsibility to check the course website regularly for any new content or announcements.** Please note: Online homework will be performed and submitted on the OWL website (see below) and not on WebCampus.

2. Course Evaluation

2.1 Point Distribution

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Three Exams (100 pts each)</td>
<td>300 pts</td>
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<tr>
<td>Final Exam</td>
<td>150 pts</td>
</tr>
<tr>
<td>Online Homework</td>
<td>100 pts</td>
</tr>
<tr>
<td>Laboratory</td>
<td>150 pts</td>
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<tr>
<td>In-Class Worksheets</td>
<td>50 pts</td>
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</tbody>
</table>

| Total Points                     | 750 points|

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

2.2 Tentative Grading Scale

The follow table shows the *approximate* grading scale for the lecture course. If needed, the course will be curved to account for student performance.
<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percent of Points Earned out of Points Possible</th>
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<tbody>
<tr>
<td>A</td>
<td>100 – 86 %</td>
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<tr>
<td>B+ to B−</td>
<td>85 – 74 %</td>
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<tr>
<td>C+ to C−</td>
<td>73 – 61 %</td>
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<tr>
<td>D+ to D−</td>
<td>60 – 50 %</td>
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<tr>
<td>F</td>
<td>&lt; 50 %</td>
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2.3 Exams

There will be three 50 minute exams (worth 100 pts each) and a final exam (worth 150 pts). The final exam will be comprehensive, covering the entire course, with new material presented after the third one-hour exam. **You must bring a picture ID to all exams. Exams will consist of multiple choice, short answer, and a few extended answer/written question(s).**

Only non-programmable calculators will be allowed during the exams. Be sure to be familiar with the operation and features of the calculator. Cell phones may NOT be used as calculators. Calculators may NOT be shared during the exam. If a student is found using a programmable calculator during the exam (even if the programming function is not in use) the student will receive zero points for the exam and will be asked to leave the exam session.

**Make-up exams will not be given for any reason.** If an exam is to be missed and if the student submits a **valid documentation** proving the absence is excusable, the percentage grade from that portion of the final exam will be substituted for the missed exam. Any invalid or undocumented absence will result in a score of a zero for the missed exam.

The **cumulative final exam** is required for completion of this course. It will cover all material discussed in lecture.

2.4 Online Homework

Online homework is a mandatory component of the course, allowing the student to earn 100 points towards their final grade. The homework will be performed and submitted on the OWL website (http://www.cengage.com/owl/). Each student must register on the website for this course.

Homework sets are to be completed at the end of each week (except for during the weeks of exams). Homework will be due each Sunday and will be based on the material covered the previous week. **See schedule below for homework due dates.**

2.5 In-Class Worksheets

This course will be structured differently in that significant class time will be used to work through problems via worksheets provided. Working problems in class will help
students immediately identify areas of weakness/confusion as well as reinforce concepts. The Learning Assistants (LAs) and myself will be walking around the room during this time to answer any questions you may have and help facilitate group discussion. These worksheets are to be handed in at the end of class but will NOT be graded – you will receive points for completion only (see grading for breakdown).

3. **ChemHelp Center**

A chemistry specific tutoring center is available for you to seek lecture and laboratory help. It is located on the third floor of the chemistry building in room 316A. The hours and schedule can be found on WebCampus or at: [http://www.unr.edu/chemistry/chemistry-help-center](http://www.unr.edu/chemistry/chemistry-help-center). The staff will be available to assist with homework questions (OWL), reviewing concepts, and working through practice problems provided by your instructor. **They will not do your homework for you.** Using the ChemHelp Center early will greatly increase your chances of being successful in this course. No appointments are necessary; walk-ins only. **You must sign-in before entering the room.**

4. **Communication Guidelines and Classroom Decorum**

The following is a list of expectations in and out of the classroom to enhance the learning environment for you and students around you.

→ All electronic devices in use must be utilized to support course work.
  • Any computers/tablets must be used only for lecture purposes (e.g. note taking).
  • Any student using a computer/tablet for lecture purposes must sit in the first three rows of the center section in the lecture hall.
  • During lecture, talking on a phone, emailing, texting, IMing, browsing the internet, engaging in social media, playing games, and/or watching videos will not be tolerated. **If you are caught doing these things you will be asked to leave.**
→ Do not talk to others during lecture.
→ Do not read non-course related materials or do homework for a different course.
→ Do not sleep during lecture.
→ Except in the case of an emergency, remain seated in the lecture hall. If it is necessary to leave or enter a room once class has begun, do so quietly and with as little disruption as possible.
Please raise your hand if you have a general question and do not interrupt another student’s question.

If you violate one of these expectations, you will be asked to leave the lecture hall immediately. Multiple offenses will be reported to the Office of Student Conduct.

5. Email Etiquette

Emails sent to any university employee 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 202”).
2. Include a salutation (e.g. Dr., Prof., etc.).
3. Write complete sentences (e.g. an independent clause with a subject noun phrase and a finite verb).
4. Do not use “texting English.” (Emails that read like text messages using jargon abbreviations, incomplete sentences, incomplete words, etc. will be considered a foreign language.)
5. Put a blank line between paragraphs. (The faster I can determine what you are saying/asking in your email, the faster I can respond.)
6. Conclude the email with your first and last name and your date of birth (so I know whom to address my response. I suggest setting up an auto-signature on your email server.)
7. Do not include your NSHE ID number or your Social Security number. (State university emails are public domain and I can look up your NSHE ID number on a secure website if needed.)
8. Do not ask how to answer a homework/lecture question. (I will answer any questions you have regarding chemistry in person. Therefore, come to office hours, visit the ChemHelp Center, or email me to setup an appointment.)
9. Do not ask about your course grade. Due to the federal law, the Family Educational Rights and Privacy Act (FERPA) of the U.S. Congress, I cannot comment on, communicate, or acknowledge your grade via email or telephone. (This is to protect your privacy as a student and an adult.)
10. Do not send an email asking for class notes or general information that can be obtained from other classmates.
11. Use the same format (salutation, complete sentences, concluding with your name) listed above for all replies. (Just because you are replying to an email does not mean you can stop using proper email formatting.)
12. Please be patient; do not expect an immediate response. Allow two business days for a response to your email. We do not work on the weekends!
13. If you fail to follow these guidelines, you may not receive a reply.

6. University Policies
6.1 Academic Dishonesty

Your continued enrollment in the course implies that you 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 (1) 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

Your student fees 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 your classroom learning; it is your responsibility to take advantage of their services.

Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

6.4 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.


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<thead>
<tr>
<th>Topics Applicable to CO9:</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<td>19 HOLIDAY</td>
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<td>26 Chapter 10:</td>
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<td>Spontaneity, Entropy, Free</td>
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<td>28 Chapter</td>
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<td>energy</td>
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<td>CH 15: Why corrosion,</td>
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<td>explosions, weathering</td>
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<td>4 Chapter 15:</td>
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<td>of rocks, etc. occur at</td>
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<td>Chemical</td>
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<td>different rates; enzymes</td>
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<td>Kinetics</td>
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<td>CH 11: Batteries, fuel</td>
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<td>cells and their applications in society; corrosion of metals</td>
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<td>13 Chapter 11: Electrochemistry</td>
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<td>16 HOLIDAY</td>
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<td>CH 7: The relationship</td>
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<td>20 Chapter</td>
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<td>between pH and the acid-base strengths of household items including lemon juice, tomatoes, wine, etc.</td>
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<td>23 Chapter 11</td>
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<td>27 Chapter 7: Acids &amp; Bases</td>
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<td>Chapter 8: The buffering of blood.</td>
<td>9 Chapter 8: App. Aqu. Equilibria</td>
<td>10 11 Chapter 8</td>
<td>12 13 Exam 2 (part 8, 11, 7)</td>
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<td><strong>16 SPRING BREAK</strong></td>
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<td>19 20 SPRING BREAK</td>
<td>21 SPRING BREAK</td>
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<td>CH 17: Osmosis through red blood cell walls; water purification</td>
<td>23 Chapter 8</td>
<td>24 25 Chapter 8</td>
<td>26 27 Chapter 17: Properties of Solutions</td>
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<td>CH 19: The role of metals in living systems; magnetism.</td>
<td>6 Chapter 19: Transition Metal Chemistry</td>
<td>7 8 Chapter 19 9 10 Chapter 19</td>
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<td>CH 16: Transistors and circuits; medical applications of nanotechnology, metal alloys</td>
<td>13 Chapter 16: Liquids and Solids</td>
<td>14 15 Chapter 16</td>
<td>16 17 Chapter 16</td>
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<td>CH 20: Uses and types of nuclear power; connection between radiation and the environment; radiation and its diagnostic and therapeutic applications</td>
<td>27 Chapter 20</td>
<td>28 29 Chapter 20</td>
<td>30 1-May Chapter 20</td>
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<td><strong>13 LIKELY FINAL EXAM DATE</strong></td>
<td>14 15</td>
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<td>16 17 Chapter 16</td>
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<td>16 17 Chapter 16</td>
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