1. COURSE INFORMATION

1.1 INSTRUCTOR INFORMATION

Instructor: Dr. Joshua Martin
Office: CB 026
Email: joshuamartin@unr.edu
Phone: 775–682–8307
Office Hours: F 12:00 p.m. – 2:00 p.m. or by appointment

1.2 LECTURE INFORMATION

→ Lecture (all sections): 12:00 p.m. – 12:50 p.m. MW in SLH 3

1.3 LABORATORY INFORMATION

→ CHEM 423/Section 1621: 1:00 p.m. – 3:50 p.m. MW in CB 106
→ CHEM 423/Section 1622: 1:00 p.m. – 3:50 p.m. TuTh in CB 106
→ CHEM 424/Section 1621: 1:00 p.m. – 3:50 p.m. M in CB 106
→ CHEM 424/Section 1622: 1:00 p.m. – 3:50 p.m. Tu in CB 106
→ CHEM 424/Section 1623: 1:00 p.m. – 3:50 p.m. W in CB 106
→ CHEM 424/Section 1624: 1:00 p.m. – 3:50 p.m. Th in CB 106

1.4 COURSE WEBSITE FOR ALL SECTIONS

→ Course Website: WebCampus (https://wcl.unr.edu/)

The course website for both the lecture and laboratory portions of the course can be found by the enrolled students on WebCampus. This site will be updated regularly with general announcements, homework assignments, laboratory schedules, experimental procedures, and supplemental information. It is the student’s responsibility to check the course website regularly for any new content or announcements.

1.5 COURSE DESCRIPTION

CHEM 423 and CHEM 424 are designed to provide training in laboratory techniques by experimental verification of the principles of physical chemistry. These courses introduce experimental techniques that will be useful in future professional work and illustrate the theoretical concepts learned in CHEM 421 and 422 by practical application. The lecture portion of the laboratory is designed to aid students in analyzing data and writing scientific reports and to introduce techniques and concepts that are used in the laboratory experiments.

CHEM 423 Prerequisites:
→ CHEM 330 (Analytical Chemistry) and CHEM 421 (Physical Chemistry 1)
→ Junior or senior standing, completion of all General Education courses that build CO 1-3 and satisfy CO 4-8
Corequisite: → CHEM 422 (Physical Chemistry 2)
CHEM 424 Prerequisites:
   → CHEM 330 (Analytical Chemistry) and CHEM 421 (Physical Chemistry 1)

1.6 Core Objectives
This course satisfies Core Objective 14: Application
Students will be able to demonstrate their knowledge and skills developed in previous Core and major classes by completing a project or structured experience of practical significance.

1.7 Student Learning Outcomes / Competencies
The following are Student Learning Outcomes (SLOs) or Competencies, which every student may achieve by the completion of the course:

1. Students will be able to conduct experiments to quantify thermodynamic, kinetic, or spectroscopic phenomena following experimental protocols and safety guidelines. (CO14, develops CO4)
2. Students will be able to quantitatively analyze the results of experiments using theoretical relationships and models. (CO14, develops CO2, CO3, CO4)
3. Students will be able to evaluate and report the experimental uncertainty of quantitative measurements. (develops CO2)
4. Students will be able to interpret the results of experiments in terms of physical chemistry concepts. (develops CO4)
5. Students will report results of experiments in the quality and form of a scientific journal article. (CO14, develops CO1 and CO3)

1.8 Required Course Materials

• Textbook (Required):
  → In “Course Reserves” at the De La Mare Library; see Section 1.8 below.

• Laboratory Notebook:
  → A permanently-bound laboratory notebook is required for the laboratory portion of the course. These notebooks are available for purchase at the UNR bookstore and at numerous online sites. Spiral-bound or loose-leaf notebooks are not acceptable.

• Safety Goggles:
  → Safety goggles must make seal with face to provide splashing entering the eye area. Safety glasses are not approved for this course.

1.9 Reference Materials on Reserve in De La Mare Library

2. COURSE ASSESSMENTS AND EVALUATION

2.1 GRADING SCHEME

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed Experiments</td>
<td>70%</td>
</tr>
<tr>
<td>Formal Report</td>
<td>15%</td>
</tr>
<tr>
<td>Lecture Assignments</td>
<td>7.5%</td>
</tr>
<tr>
<td>Performance Evaluation</td>
<td>7.5%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

There is no extra credit work available. All available points that are possible to earn in the course are listed on the left in one of the four categories. Upon submission of the final exam, the student has attempted all graded assessments and no further points can be earned.

2.2 TENTATIVE GRADING SCALE

The table on the right shows the tentative grading scale for the lecture course. The lower limits of a letter grade may be lowered, but will never be raised. Plus and minus letter grades will be utilized for the top 2% and bottom 2%, respectively, for B, C, D grades.

<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 – 90 %</td>
</tr>
<tr>
<td>B+ to B–</td>
<td>89 – 80 %</td>
</tr>
<tr>
<td>C+ to C–</td>
<td>79 – 70 %</td>
</tr>
<tr>
<td>D+ to D–</td>
<td>69 – 60 %</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60 %</td>
</tr>
</tbody>
</table>

There is no extra credit work available. All available points that are possible to earn in the course are listed on the left in one of the four categories. Upon submission of the final exam, the student has attempted all graded assessments and no further points can be earned.

2.3 ASSESSMENTS

2.3.1 COMPLETED EXPERIMENTS

A completed experiment consists of a pre-lab notebook assignment, in-lab notebook record, and a Standard Report. The Standard report will be evaluated on the basis of quality of the experimental results, skill in the analysis of the data, evidence that the student has understood the nature of the experiments, and completeness of the error discussion. Experiments are graded by the teaching assistant responsible for the experiment. All parts of the experiment (pre-lab, in-lab, and report) must be completed before the experiment will be graded.

Standard Reports are due at the beginning of the laboratory period one week after the experiment has been completed. A deduction of 10% is applied to the grade for each day the report is late and no reports will be accepted that are more than four days late.

2.3.2 FORMAL REPORT

The evaluation criteria are essentially the same as for the standard reports, but also include clarity and completeness of presentation, and the quality judged as a scientific publication. Graded by the faculty instructor, the formal report is valued at 15% of the course grade. The formal report will only be graded after the standard report for the completed experiment has been submitted and graded by a teaching assistant.

The first version the Formal Report is due to Dr. Martin’s office by 5 p.m. on Thursday, April 2nd, 2015. A deduction of 15% is applied to the grade for each day the Formal Report is late and no reports will be accepted that are more than four days late. The final version of the Formal Report is due in SLH 3 at 12:30 pm on Friday May 8th, 2015 in lieu of a final exam for the course.
2.3.3 Performance Evaluation

Grade points for the Performance Evaluation will be awarded on the basis of a collection of criteria, which are best described as actions consistent with a scholarly, professional, and conscientious approach toward the laboratory work of the course. These include such things as keeping a neat and up-to-date lab notebook, coming to class on time and prepared to start work on the assigned experiment, cooperating with other students and team members, practicing good laboratory housekeeping, and avoiding actions jeopardizing your safety or that of others.

2.3.4 Lecture Assignments

The lecture portion will include Problem Sets totaling 7.5% of the overall course grade. Working with other students enrolled in the course on the Problem Sets is encouraged; however, the ability to independently analyze, explain, and solve problems is vital to success on exams. Computational mathematic software can be utilized by students to present their problem set in a clear, concise, and easy-to-read format. However, all significant mathematical steps in derivations and calculations and all units (when applicable) must be shown in the problems for full credit. Submitting the output of a software program as the answer to a problem will not be considered the student’s own work.

3. Course Attendance and Excused Absences

Students are expected to attend all class meeting in order to be successful in the course. However, during the semester students may encounter events that are beyond their control and affect their ability to complete assessments on time. In the event that a student is absence or unable to complete an assessment because of one of the causes listed below as an Excused Absence, the students will be able to earn the points for the assessment that they missed. To earn points for the assessment, the student must meet with Dr. Martin to explain the circumstances and turn in valid documentation (with the date of the event shown) for the cause of their absence.

The following is a list of circumstances that constitute an Excused Absence when valid documentation is provided:

→ Medical Emergency or Issue → Family Emergency
→ University-related Activity → Religious Holy Day

If the student is absent or unable to complete an assessment for circumstances that are not listed above or does not provide valid documentation for Dr. Martin, the event will not constitute an excused absence and the student cannot earn any grade points for the incomplete assessment. Valid documentation clearly states the date of the event and can be, for example, a physician’s note, a funeral program, a letter from a coach or athletic director, a letter from a professor, etc. Letters from a student’s parents will not be accepted as valid documentation. Finally, commitments scheduled after the first day of lecture, during which the dates of exams will be announced, will not constitute excused absences from an exam, except in the case of an emergency.

4. University Policies

4.1 Academic Calendar

For important dates pertaining to enrollment in the course, please refer to the Academic Calendar on the University of Nevada, Reno website:
4.2 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 (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.

4.3 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 Dr. Martin 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

4.4 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. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.
4.5 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.

Please refer to Section 3.3 for a list of circumstances that constitute an excused absence and the procedure for earning grade points towards a missed assessment.

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.

4.6 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.