Chemistry 1415 Course Outline, Spring 2016
Course Website: learn.ou.edu

Instructor
Dr. L. Clifford
Dr. D. Awasabisah

Office Hours
Instructor
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Email
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Section
001
002
003

Location
PHSC 201
DH 211
PHSC 201

Meeting Time
10:30 am – 11:20 am
1:30 pm – 2:20 pm
1:30 pm – 2:45 pm

Office Hour Location
119 CHBA
119 CHBA

Day
MWF
TR

Day Meeting Time
9:00 am – 10:15 am; 12:10 pm – 1:10 pm
3:00 pm – 4:30 pm

Description: Chemistry 1415 is the second semester of a two semester sequence of general chemistry for students in the physical sciences, engineering, health sciences, biological sciences, and related fields.

Prerequisite: Grade of C in Chemistry 1315 or satisfactory score on the chemistry placement examination. This class is a continuation of Chemistry 1315.


Homework & Lecture Prep Assignments: MasteringChemistry (http://www.pearsonmylabandmastering.com/northamerica/)

Personal Response Device (clicker): i>clicker2 (http://www1.iclicker.com/)

Preparation for Lectures & Exams

Students should consult the syllabus calendar, located on the last page of the syllabus, to prepare for each lecture. The readings identified below are keyed to the current text and learning objectives for the course. You may choose to use any general chemistry textbook provided you are comfortable using the learning objectives below and your text’s table of contents. The order of the readings does not necessarily reflect the order of topics covered in lecture. Students may find that reading the textbook chapters in the order written by the textbook author to be more natural.

Homework problem sets (HW-#) and Lecture Prep assignments (LP-#) have been assigned to each unit of study and are due on the dates indicated on the course calendar at the end of this syllabus. Homework and Lecture Prep problems will be done via MasteringChemistry (http://www.pearsonmylabandmastering.com/northamerica/), a computer based problem-solving program. MasteringChemistry assignment (HW and LP) due time is 11:55 p.m. for all assignments. Homework problem sets and Lecture Prep assignments are minimum assignments representative of the question types you will be expected to be able to answer on examinations and quizzes. You should also attempt appropriate additional problems in your textbook as part of your preparation.

Learning Objectives, Reading Assignments

Unit 1 – Chemical Kinetics - Chapter 13
1.1. Express and compare rates of chemical reactions in terms of the concentration changes of the reactants and products (or factors proportional to concentration) per unit time. [Readings 13.2]
1.2. From experimental kinetics data, derive the rate law, order, and rate constant for a chemical reaction. [Readings 13.3]
1.3. For a zero, first or second order reaction, determine the exact rate constant and half-life for a chemical reaction from time/concentration data. [Readings 13.4]
1.4. From a reaction profile, determine ΔH & E_a for a chemical reaction. [Readings 13.5]
1.5. From kinetic data, determine the relationship between E_a, k, and the temperature of both catalyzed and uncatalyzed chemical reactions. [Readings 13.5]
1.6. Use collision theory to explain how chemical reactions occur and how rates are affected. [Readings 13.5]
1.7. Determine the relationship between the rate law and the mechanism of a simple chemical reaction. [Readings 13.6]
1.8. Explain the role of catalysts, what they are, how they work, and how they affect a reaction profile. [Readings 13.7]
Unit 2 - Chemical Equilibrium - Chapter 14
2.1. Characterize chemical reactions in terms of reversibility and relative concentrations of reactants and products. [Readings 14.2]
2.2. Determine equilibrium expressions for homogeneous and heterogeneous chemical reactions from stoichiometry. [Readings 14.3, 14.5]
2.3. Determine the relationship between $K_{eq}$ and $K_{new}$ when a chemical reaction is reversed or multiplied by a constant factor of $n$ or two reactions are added to form a third reaction. [Readings 14.3]
2.4. Determine the relationship between $K_c$ and $K_p$ for a chemical reaction involving gaseous components. [Readings 14.4]
2.5. Determine value for $K$ from equilibrium concentrations of reactants and products in a chemical reaction. [Reading 14.6]
2.6. Determine if equilibrium has been reached in a chemical reaction; determine the direction the reaction will shift if equilibrium has not been reached. [Readings 14.7]
2.7. Determine the stoichiometric relationship between initial and equilibrium concentrations of reactants and products. [Readings 14.8]
2.8. Determine the equilibrium concentrations of reactants and products of a chemical reaction from initial concentrations and value of $K$. [Readings 14.8]
2.9. Use Le Châtelier's Principle to predict the direction a reaction at equilibrium will shift as a result of changes in conc., pressure/volume, and temperature as it approaches a new equilibrium. [Readings 14.9]

EXAM 1 - Thursday, February 11th, 7:30 - 8:45 p.m. (Rooms to be announced)

Unit 3 - Acids and Bases - Chapter 15
3.1. Define acids and bases in terms of Arrhenius, and Brønsted-Lowry theories. [Readings 15.3]
3.2. Recognize and construct conjugates of acids or bases. [Readings 15.3, 15.8]
3.3. Determine the $[H^+]$, $[OH^-]$, pH and/or $pOH$ of a strong acid or strong base solution. [15.4, 15.6, 15.7]
3.4. Determine and relate equilibrium concentrations, $[H^+]$, $[OH^-]$, pH and/or $pOH$ with $K_a$ values for weak acids (also, same for $K_b$ values for weak bases). [Readings 15.4, 15.7]
3.5. Relate $[H^+]$, $[OH^-]$, and $K_w$ in an aqueous solution. [Readings 15.5]
3.6. Determine the pH and/or $pOH$ of an aqueous solution from the $[H^+]$ (or $[OH^-]$) and v.v. [Readings 15.5]
3.7. Determine the $[H^+]$, $[OH^-]$, pH and/or $pOH$ for weak acids or weak bases from initial concentrations. [Readings 15.6, 15.8]
3.8. Determine the $K_a$ for a weak base, given the $K_b$ value of its conjugate acid (v.v.). [Readings 15.8]
3.9. Construct an ordered list of strongest to weakest (or v.v.) for acids or bases. [Readings 15.10]
3.10. Determine the $[H^+]$, $[OH^-]$, pH and/or $pOH$ of a salt solution. [Readings 15.8]
3.11. Qualitatively determine the acidic, basic, or neutral properties of a salt. [Readings 15.8]
3.12. Determine the $[H^+]$, $[OH^-]$, pH and/or $pOH$ of weak and strong polyprotic acids. [Readings 15.9]
3.13. Identify acids and bases using Lewis theory. [Readings 15.11]

Unit 4 - Buffers, Titrations and Solubility - Chapter 16
4.1. Define and make buffer solutions from (1) a weak acid and its conjugate base, (2) a weak base and its conjugate acid, (3) a weak acid and a strong base, and (4) a weak base and a strong acid. [Readings 16.2]
4.2. Determine the pH of a buffer solution from concentrations and v.v. [Readings 16.2]
4.3. Make a buffer with a specific pH. [Readings 16.3]
4.4. Determine the conjugate pair best suited to make a buffer of desired pH. [Readings 16.3]
4.5. Analyze a strong acid/strong base titration (including polyprotic) (determine end point location and entire pH curve, including pH at beginning, pH at end point, and pH at all other points). [Readings 16.4]
4.6. Analyze a titration of a weak acid or base with a strong base or acid (determine end point location and entire pH curve, including pH at beginning, pH at end point, and pH at all other points). [Readings 16.4]
4.7. Determine the $K_{sp}$ equilibrium expression for a partially soluble salt. [Readings 16.5]
4.8. Determine the $K_{sp}$ value, given the solubility of a salt (v.v.). [Readings 16.5]
4.9. Determine the effect of a common ion on the solubility of a partially soluble salt. [Readings 16.5]
4.10. Determine the effect of pH on solubility [Readings 16.5]

EXAM 2 - Thursday, March 10th, 7:30 - 8:45 p.m. (Rooms to be announced)
Unit 5 - Chemical Thermodynamics - Chapters 17 (6)
5.1. Apply Hess' Laws to thermodynamic quantities. [Readings 6.8]
5.2. Determine ΔH° for a chemical reaction from ΔH° values of reactants and products. [Readings 6.9]
5.3. Predict the qualitative change in enthalpy for various chemical reactions. [Readings 6.6]
5.4. Predict and compare the qualitative change in entropy for various chemical reactions and physical processes. [Readings 17.3, 17.4]
5.5. Relate ΔS°sys and ΔS°surf for a chemical reaction. [Readings 17.4]
5.6. Determine ΔG° for a chemical reaction from the Gibbs equation. [Readings 17.5]
5.7. Determine ΔS° for a chemical reaction from S° values of reactants and products. [Readings 17.6]
5.8. Determine ΔG° for a chemical reaction from ΔG° values of reactants and products. [Readings 17.7]
5.9. Determine ΔG° for a chemical reaction from ΔG° and the reaction quotient, Q. [Readings 17.8]
5.10. Predict whether a chemical reaction, as written, is spontaneous, non-spontaneous, or at equilibrium. [Readings 17.2, 17.5, 17.8]
5.11. Calculate the standard free energy for a chemical reaction from the equilibrium constant (v.v.). [Readings 17.9]
5.12. Determine the equilibrium temperature, T°, for a chemical reaction from ΔH° and ΔS° (v.v.). [Readings 17.8]

Unit 6 - Electrochemistry - Chapters 18 (8)
6.1 Assign oxidation numbers (oxidation states) to individual elements in a chemical compound or complex ion. [Readings 4.9]
6.2. Recognize redox reactions; distinguish from reactions not involving oxidation/reduction. [Readings 4.9]
6.3. Stoichiometrically balance both half-reactions and cell reactions involving redox. [Readings 18.2]
6.4. Draw a diagram of a voltaic (galvanic, spontaneous) cell and explain how it works, predicting changes which will occur during discharge. [Readings 18.3]
6.5. Define and identify anode, cathode, oxidation process, reduction process, oxidizing agent, and reducing agent for a redox reaction. [Readings 18.3, 18.4]
6.6. Construct a line notation for an electrochemical cell from information concerning the anode, cathode, oxidation process, reduction process, oxidizing agent, and/or reducing agent (v.v.). [Readings 18.3]
6.7. Calculate E° for a chemical reaction using a standard reduction potential table. [Readings 18.3]
6.8. Predict the products of a redox reaction. [Readings 18.4]
6.9. Calculate and relate values of E°, ΔG°, and K for an oxidation-reduction reaction. [Readings 18.5]
6.10. Calculate E for a redox reaction under non-standard conditions of constituent concentrations and/or pressures. [Readings 18.6]
6.11. Draw a diagram of an electrolytic (non-spontaneous) cell and explain how it works, predicting changes which will occur during operation. [Readings 18.8]
6.12. Relate the amount of product(s) produced and/or reactant consumed in an electrolytic cell to the current used, time involved, and moles of electrons associated with the corresponding half-reaction. [Readings 18.8]

EXAM 3 - Thursday, April 14th, 7:30 - 8:45 p.m. (Rooms to be announced)

Unit 7 - Nuclear Chemistry - Chapter 19 (6)
7.1. Identify the number of protons and neutrons found in the nucleus of any atom. [Readings 2.6]
7.2. Identify the symbols representing various subatomic particles. [Readings 2.6, 19.3]
7.4. Write balanced equations for nuclear reactions including decay, transmutation, fission, & fusion. [Readings 19.3, 19.7, 19.9, 19.10]
7.5. Identify missing nuclear particles in a nuclear reaction. [Readings 19.4]
7.6. Determine the half-life, beginning amount, final amount, or elapsed time in a radioactive decay reaction. [Readings 19.6]
7.7. Use radioactive (e.g. carbon-14, uranium-238, potassium-40) dating techniques to calculate the age of a substance. [Readings 19.6]
7.8. Determine the mass defect, binding energy, and binding energy per nucleon for a nuclear particle. [Readings 19.8]
7.9. Determine the energy absorbed or released in a nuclear reaction. [Readings 19.8]
Unit 8 - Coordination Chemistry - Chapter 24 (8.8)

8.1. Determine the electronic configurations of transition metals and metal ions. [Readings 8.7, 24.2]
8.2. Recognize and identify coordination compounds and their components. [Readings 24.3]
8.3. Determine oxidation number, coordination number, orbitals used in bonding, and geometry of the central metal atom in coordination compounds and complexes. [Readings 24.3, 24.5]
8.4. Describe the bonding effects of polydentate ligands. [Readings 24.3]
8.5. Given their formulas, name coordination compounds and complexes (and v.v.). [Readings 24.3]
8.6. Recognize, describe, and identify structural isomers (coordination & linkage) and stereoisomers (geometrical and optical) of coordination complexes. [Readings 24.4]
8.7. Explain spin state and the magnetic and color properties of transition elements. [Readings 24.5]
8.8. Relate and predict electronic structure, field strength (~), spin state, and magnetic and color properties of coordination complexes in octahedral, tetrahedral, and square planar environments. [Readings 24.5]
8.9. Relate and predict electronic structure, field strength (~), spin state, and magnetic and color properties of coordination complexes based on ligand strength. [Readings 24.5]
8.10. Relate ligand and complex ion concentrations using formation constants. [Readings 24.6]

EXAM 4 - Monday, May 9th, 7:30 - 9:30 p.m. (Rooms to be announced)

Evaluation (grading)

A total of 845 points are possible for CHEM 1415.

Letter grades will be assigned based on the point cut-offs listed in the table to the right.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Points</th>
<th>Final Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>760</td>
<td>A</td>
</tr>
<tr>
<td>80%</td>
<td>676</td>
<td>B</td>
</tr>
<tr>
<td>70%</td>
<td>591</td>
<td>C</td>
</tr>
<tr>
<td>60%</td>
<td>507</td>
<td>D</td>
</tr>
<tr>
<td>Below 60%</td>
<td>&lt;507</td>
<td>F</td>
</tr>
</tbody>
</table>

The 845 points possible in CHEM 1415 are distributed as shown (detailed description of each follows table):

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Point distribution</th>
<th>Total point contribution to final grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term Exam</td>
<td>Three exams @ 100 pts each</td>
<td>300 pts</td>
</tr>
<tr>
<td>Final Exam</td>
<td>One comprehensive exam @ 200 pts</td>
<td>200 pts</td>
</tr>
<tr>
<td>Laboratory Reports</td>
<td>Eleven lab reports @ 15 pts each</td>
<td>165 pts</td>
</tr>
<tr>
<td>Recitation</td>
<td>Eleven recitation scores recorded, best nine used toward final grade, @ 10 pts each</td>
<td>90 pts</td>
</tr>
<tr>
<td>Homework (Mastering Chemistry)</td>
<td>Eight Homework Assignments @ 10 pts each</td>
<td>80 pts</td>
</tr>
<tr>
<td>Safety Video Quiz (D2L)</td>
<td>Ten questions @ 0.5 pts each</td>
<td>5 pts</td>
</tr>
<tr>
<td>Integrity Quiz</td>
<td>Ten questions @ 0.5 points each</td>
<td>5 pts</td>
</tr>
<tr>
<td>Total points possible = 845</td>
<td></td>
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</table>
LECTURE

Required materials:
- MasteringChemistry access (http://www.pearsonmylabandmastering.com/northamerica/)
- i>clicker2 (http://www.i-clicker.com)
- Approved calculator: either a TI 30XS or a Casio FX115MS calculator. No other calculator may be used on exams.

Examinations:

Exam organization: The course content in CHEM 1415 is divided into eight units. The chapters/sections of the text covered on each exam are listed by the reading assignments within each learning objective in the syllabus. Questions on examinations may cover laboratory concepts, homework problem sets, MasteringChemistry homework assignments, class context and examples, or other course content. All general chemistry instructors are involved in the exam question preparation for each exam. Although previous exams from past terms will be posted to D2L for concept practice, students should not expect the same order, format and/or question types on the current semester exams. The number of exam questions and point total will vary per question.

Exam absence for University sanctioned events: Students who will be away from campus on an exam date due to a University sanctioned event should contact Dr. Clifford, the general chemistry coordinator, and finalize arrangements with a National Collegiate Testing Association (NCTA) testing center at least one week prior to the exam date (see the course D2L page for instructions). NCTA centers have different requirements about setting up exams in advance; therefore it is advisable to start this process well ahead of the one week deadline.

Exam absences for illness, non-University events, and other misc. reasons: There are no make ups for missed exams. Students who miss an exam due to illness or for any reason such as but not limited to personal reasons (work, interviews, family events, weddings, etc.) will not be administered a make up exam. In lieu of a make up exam, the percentage score of the comprehensive final exam will be substituted for the score of the missed exam. For example, a student scoring 160 out of the 200 possible points on the final exam (80%) will be awarded a score of 80 points out of 100 points for the missed mid-term exam. Students missing more than one exam should contact Dr. Clifford with documentation of the absences.

Final exam: The final exam will be comprehensive in content, covering all eight units of CHEM 1415. The final exam will be worth 200 points. All students will have the opportunity to replace their lowest mid-term exam score by using their comprehensive final exam percentage score. For example, a student scoring 67 out of 100 points on Exam 3 (67%) but 145 points out of 200 on the final exam (72.5%) will be able to use this higher score (72.5 point out of 100 points) in place of Exam 3. This is the same process used to replace the zero score of students absent for illness and other reasons, noted above.

Alternate exam time (Exams 1 – 3 only): Students who cannot attend scheduled night exams 1 – 3 because of a job or class conflict or other University approved activity may take an alternate exam to be given earlier in the day on the day of the exam [7:00 a.m.; location to be announced]. Students who qualify to take an alternate exam must register in advance by providing all of the following information by noon on Monday of the exam week: Name, I.D., Lecture Instructor, Lab Instructor, reason why you cannot attend the scheduled exam, and the name and phone number where excuse can be verified (not yourself or a family member). Submit this registration by email to Dr. Clifford, the coordinator for general chemistry courses [lclifford@ou.edu]. Include “CHEM 1415 alternate exam” in the subject line of the email. You must submit a registration for each alternate exam needed even if the conflict is a reoccurring one, such as a class. Early exams are collected and returned to the student later through their teaching assistant. Any student found to have shared the exam content from the early exam will be charged with academic misconduct.

Important exam information:

ID is required: You must bring your OU I.D. or some other form of photo identification to all exams. Scantrons and adequate paper to work problems will be provided at each exam within the exam packet. You may not bring your own scratch paper to the test.

No electronic devices: Electronic communication devices including but not limited to Apple watches, cellular phones, pagers, FM receivers, headphones, music devices of any sort, etc. are banned from examination rooms and may not be in a student’s exam
space. Individuals for whom circumstances make the possession of such devices necessary must be approved by their laboratory instructor prior to an examination to make arrangements. Students found with an unauthorized electronic device in their exam space or on their person will be charged with academic misconduct, whether or not the device was in use at the time it was discovered.

Exam completion: When time is called for the exam, students must immediately cease working on the exam and writing on the scantron. This includes filling in the scantron for exam question answers, name, ID, exam version, and all coding necessary for the grading of the exam. Exam proctors will not accept any exams from students who continued to fill in scantron bubbles after time was called.

Exam rooms: Exam rooms are assigned by Classroom Management. The general chemistry program cannot guarantee or control the workspace area, the functioning of exam room clocks, the temperature of the room, or the lighting. The teaching assistants in the exam rooms will announce 30, 20, 15, 10, 5, 2, and 1 minute(s) remaining in the exam, even if there is a clock present in the room. Since students may not use their cell phones during the exam, plan to wear a non-Apple watch if you wish to monitor the exam time more closely.

Approved calculators only: The only calculators allowed at the exam are the TI 30XS or Cassio FX115MS calculators. No other calculator may be used on this exam. Since cell phones are not allowed, you may not use the calculator function of a cell phone. You will be expected to use an appropriate calculator on all recitation and lab assignments as well as examinations so that you are well versed in the function of the calculator for the exams. Students using calculators on exams that have not been approved may be charged with academic misconduct.

Exam location: Make sure you know where your assigned testing site is before the exam. Exam room assignments will be sent by email and will be posted to the course website. Students who arrive more than ten minutes late to an exam, or arrive after another student has left, will not be allowed to take the examination.

Exam grade discrepancies on D2L: Following each exam, an email will be sent by the general chemistry coordinator informing students that exam grades have been posted to D2L. Students will have one week after this email is sent to report exam grade discrepancies for correction. After the one week deadline, there will be no changes to a student’s exam grade. Students will be directed to 1000 SLSRC for any grade discrepancies, including but not limited to missing or incorrect ID numbers on the scantron.

Homework Problem Sets (MasteringChemistry):

Required materials:
- Access through MasteringChemistry (http://www.pearsonmylabandmastering.com/northamerica/). If you purchased access in the Fall 2015 term, you will have access still for the Spring 2016 term.

Grading: Homework problem sets will be assessed for each of the eight units covered. These problem sets are designed to help students prepare for the examinations and will be available through MasteringChemistry (http://www.pearsonmylabandmastering.com/northamerica/). Homework problem sets are worth 10 points per unit and cover the content of the course learning objectives. Each homework question may be attempted multiple times. Homework problem set scores will not count unless submitted by the deadlines (date and time) indicated on MasteringChemistry’s website. **Homework problem set due time is 11:55 p.m. for every assignment.** Since your computer and/or the net are not guaranteed to work at the last minute, we STRONGLY recommend that you not wait until the last minute to complete online homework. The MasteringChemistry server time may differ from your clock, so submit your work well in advance of the due date time.

Make-ups: There are no make-ups homework problem sets since they are posted well in advance of the due date/time for each unit.

LABORATORY

Required materials:
- Laboratory activities: Available for download/printing on D2L course website
- **Approved** safety goggles: Must be purchased by the first day of lab
Lab check-in/check-out: Students will be assigned a lab drawer/locker on the first day of laboratory. Each student will account for his/her supplies at check-in and will vouch for the condition of the equipment, requesting replacements for dirty, damaged, or unusable items. Students must check out of their laboratory locker at the end of the term. Failure to check out on the assigned day at the assigned laboratory time will result in being assessed a $75 check-out fee. Students who withdraw from the class must attend the next regular laboratory session in order to check out of their locker or they will be assessed a $75 check out fee. Students who withdraw may not arrange a special time with their TA in order to check out. For any extenuating circumstances, contact Dr. Clifford.

Grading: Laboratory grades will be based on eleven laboratory reports worth 15 pts each. All scores from these eleven grades will be used for the final grade calculation. See the attached calendar (last page of syllabus) for a schedule of laboratory activities corresponding to your laboratory activities posted to D2L. A portion of the laboratory report will be assigned as a pre-lab assignment, due by midnight the night prior to the student’s lab period. The lab/recitation instructor will provide more details on the pre-lab. Failure to complete the pre-lab by the due date/time may result in the TA not allowing the student to complete the laboratory due to safety considerations.

Missed laboratories: Students will be allowed to make up one lab provided the student misses a lab for a valid, documentable reason. If ill, a student must email their laboratory instructor within 24 hours after the missed laboratory period regarding their absence. A doctor’s note is required for any absences due to illness. If a student must miss lab for other valid reasons (including but not limited to immigration status meetings, child custody hearings, government proceedings, etc.), written documentation is required from the source (not from a parent, spouse, or non-official source). Documentation of such absences must be submitted within one week of the missed laboratory period to the lab instructor.

Attendance in lab: Attendance will be recorded within the first ten minutes of the laboratory period. Students who are not present at the time attendance is recorded will be considered absent and will not be allowed to make up the laboratory without a valid excuse (doctor’s note, University sponsored event, military duty, etc.). Attendance will be posted on D2L through the lab/recitation D2L page. Once posted, students will have one week to contact the TA regarding inaccuracies. After the one week period, no changes will be made. Students turning in lab reports for a laboratory period when they were absent will be charged with academic misconduct. Students must attend the laboratory check-out period at the end of the term or they will be assessed a $75 check-out fee. Any absences from the laboratory check-out due to valid reasons must be accompanied by written documentation or the $75 check-out fee will be assessed.

RECITATION

Grading: Eleven recitation grades will be recorded with the best nine out of the eleven applied to the final grade calculation. Recitation grades will be based on group activities and computer laboratory activities performed in recitation. Recitation instructors may also use clickers in recitation activities. Recitation meets every week; however, see the attached calendar (last page of syllabus) for a schedule of when recitation/discussion activities will be recorded for a grade.

Absences/Make-ups: There are no make-ups for recitation as students can miss two recitation grades with no effect on their grade. Absences due to illness or any other reason will all be treated in the same manner; however, it is strongly recommended that you let your recitation instructor know if you are ill prior to the start of recitation so that he/she may let you know of any important information that was disseminated during recitation. Use your absences prudently. For example, a student who misses two recitations for no valid, documentable reason (such as an illness, family emergency, etc.) and then misses a third for an unavoidable reason (funeral, illness, etc.) will NOT be allowed to make up the third missed recitation. This may negatively impact a student’s grade at the end of term.

General notes on grading & grade discrepancies:

D2L: Grades may be viewed on the D2L website for the course (learn.ou.edu). Please note that most grades will not appear immediately on D2L as they will be intermittently updated during the term. Students will be notified via email by the General Chemistry Coordinator when grades are ready to be reviewed on D2L. Once notified by Dr. Clifford, students must abide by the deadline to correct any grade discrepancies. After the noted deadline, usually one week, no changes will be made.
Discrepancies: Save all graded lab reports and any other documents returned to you for comparison with our records. In the event of a discrepancy, you will need to provide the original, graded lab or recitation assignment for verification. Discrepancies in lab report grades or recitation assignments should be reconciled with your laboratory/recitation instructor within one week after the grade has been posted to D2L. Discrepancies with exam grades should be resolved within one week after the grade has been posted to D2L by bringing your student ID and your exam paper (blue/pink/crn/gold exam) to request a hand-grade of the scantron from the Undergraduate Program Assistant, Ms. Tanya Garvin (1000 SSSC, 8 a.m. – 5 p.m.) or other Department of Chemistry and Biochemistry staff. Discrepancies in MasteringChemistry grades should be reported within one week after the grade has been posted to D2L to the Gen. Chem. Coordinator, Dr. Clifford (clifford@ou.edu).

Grade changes: Students have one week following the posting of grades to the course D2L page in order to address grade discrepancies. Included are all exam, lab, recitation, homework problems sets, extra credit lecture prep assignments, and extra credit clicker grades. After this one week time, no changes will be made regarding missing or incorrect grades. No grade changes will be made at the end of term on the basis of a student wishing to obtain a higher grade than was earned by point total. No extraneous extra credit other than that outlined in the course syllabus is allowed.

EXTRA CREDIT

Extra Credit: In addition to the course points assigned above, extra credit points are available for ONLY (1) in-class lecture activities assessed by the use of clickers and (2) the MasteringChemistry Lecture Prep assignments (designated as EC LP-# on the syllabus calendar). These extra credit homework problem sets are not to be confused with the homework problem sets that are also available through MasteringChemistry. Deadlines for extra credit homework problem sets are found on the syllabus calendar and on the MasteringChemistry site.

In-Class (lecture) clicker extra credit: Instructors will use i>clicker2 personal response devices (clickers) to ask students questions to earn extra credit in class. A maximum of 20 points of extra credit is possible from clickers, with five points possible over each exam period. Extra credit points are divided by exam periods as Clicker EC1, EC2, EC3, and EC4. EC1 encompasses questions asked in class over Units 1 and 2, EC2 covers Units 3 and 4, EC3 covers Units 5 and 6, and EC4 covers Units 7 and 8. Questions asked in class earn 1 “clicker point” per correct answer and 0 points for an incorrect answer. At the end of the extra credit period, clicker points are converted to extra credit points for the course as follows: If at least half (50%) of the clicker points are earned per extra credit period, students are awarded the full 5 points possible. If less than half (50%) of the clicker points are earned, students are awarded the proportion of the points corresponding to the amount of credit amassed. The 50% level whereby full points are awarded is also a means of covering various issues, including but not limited to, battery failure, forgetting to bring a clicker to lecture, or missing a lecture due to illness.

MasteringChemistry Lecture Prep Assignments: The MasteringChemistry Lecture Prep Assignments, designated EC LP-# on the course syllabus calendar, are designed to help students prepare for the upcoming lecture content and will be available through MasteringChemistry (http://www.pearsonmylabandmastering.com/). MasteringChemistry Lecture Prep assignment scores will not count unless submitted by the deadline (date and time). The due time for the Lecture Prep assignments (EC LP-#) is 11:55 p.m. each Monday night, except for EC LP 1 which is due Friday, January 22, 2016. Fifteen Lecture Prep Assignments will be available, with the percentage score converted to reflect a score out of three points each for a maximum of 45 extra credit points awarded for the term. Since your computer and/or your wifi access are not guaranteed to work at the last minute, we STRONGLY recommend that you not wait until the last minute to complete online assignments. There are no make-ups for the extra credit MasteringChemistry Lecture Prep Assignments.

FINAL GRADES

Final grade determination: Final grades will be determined by summing the scores noted previously in the syllabus (lab, recitation, exams, lecture prep assignments, safety and integrity quizzes). After the course points are summarized and the grade calculated, the extra credit points earned by the student will be added to this total. The final letter grade issued to the student will be that as determined by comparison of the sum of the course points plus extra credit points to the scale outlined previously on page 3 of the syllabus. Students should not expect a curve in the course; however, the instructors reserve the right to curve.
Final grades: Final grades are just that—final. Only in the event of an administrative error will grades be changed, and the only changes that will be made are those for which the time period for reporting errors/discrepancies is still valid (one week from the reporting of an exam score, for example). Grades are issued based on the student’s accumulated points. Once issued, grades will not be altered based on a student’s desire to achieve a higher score. Grades will also not be altered to fail a student desiring to replace the course grade and improve his/her GPA with retaking the course. Unfortunately, in a course of this size there is no possible way to prevent some students from being very close to the grade cutoffs. With as many students as are taking general chemistry, it is simply impossible to treat each student as a special case and be fair to other students. No grade change will be made solely on the basis of a student wishing to achieve a higher grade that was not determined by the listed cutoffs. Also, there is no extraneous extra credit and no possibility of rewriting laboratory reports or recitation assignments. Do not request additional extra credit from your lecture instructor, your lab/recitation instructor, or the General Chemistry Coordinator.

Policies & Notes

The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Disability Resource Center prior to receiving accommodations in this course. The Disability Resource Center is located in Goddard Health Center, Suite 166, phone 405/325-3852 or TDD only 405/325-4173.

Each student should acquaint her or his self with the University’s codes, policies, and procedures involving academic misconduct, grievances, sexual and ethnic harassment, and discrimination based on physical handicap.

The instructor reserves the right to change any items contained in this syllabus. This includes, but is not limited to: course content, scheduled dates, and fraction(s) of final grade assigned to individual components of the course.

Religious Observance: It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

Adjustments for Pregnancy/Childbirth Related Issues: Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your instructor as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see www.ou.edu/content/eoo/pregnancyfaqs.html for commonly asked questions.

Title IX Resources: For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on-call 24/7, counseling services, mutual no contact orders, scheduling adjustments and disciplinary sanctions against the perpetrator. Please contact the Sexual Misconduct Office 405-325-2215 (8-5) or the Sexual Assault Response Team 405-615-0013 (24/7) to learn more or to report an incident.

Academic misconduct: Students engaging in academic misconduct (including cheating, plagiarism, and any other action that may improperly affect evaluation) will be subject to sanctions in accordance with the Student’s Guide to Academic Integrity at http://integrity.ou.edu/students_guide.html. Academic misconduct of any kind will not be tolerated. Academic Misconduct is defined as any act which improperly affects the evaluation of a student’s academic performance or achievement. Misconduct occurs when the student either knows or reasonably should know that the act constitutes misconduct. "I didn’t mean to" is never an excuse for academic misconduct. Academic misconduct of any kind will be dealt with by official University channels and will be punishable by penalties including receiving a grade of “F” for the course and/or expulsion from the University. Any papers, writings, or materials that are deemed suspicious by the instructor or the exam proctors will be confiscated and/or documented for misconduct procedures as considered appropriate (e.g. photographs of writing on surfaces). You should understand that your instructors take these matters seriously. Students who are caught in any form of academic misconduct should expect extremely severe penalties. Turnitin will be used for laboratory report submissions, checking for plagiarism.

Email communication: In order to aid communication, the University has established email as an acceptable means of official communication. All University students are assigned an official University email account and your instructor and/or the General Chemistry Coordinator will be communicating with you through this account periodically. Email sent to this account is expected to be read by you in a timely fashion. For convenience, you can arrange to have your email forwarded to another email account (go to accounts.ou.edu); however, the University warns that you do so at your own risk. Failure to receive or read the
communications sent to you via your official email account in a timely manner does not absolve you from knowing the information sent to you. Any correspondence with your instructor should include your name, section number, and the phrase “CHEM 1415” in the subject line.

**Class conduct:** Students are expected to be attentive during course and lab/discussion lectures and to remain seated until the end of the period. Turn off cell phones while in lab, recitation, or lecture. Refrain from using laptops and tablets for any reason other than course-related activities. Disruptive behavior in lecture, laboratory, or recitation will not be tolerated.

**Laboratory and recitation will begin the first week of class:** You should bring paper, pen and pencil, lab or recitation materials, and a calculator to laboratory and recitation meetings. Students who do not check into laboratory during the first scheduled laboratory class may lose their space and be dropped from lab. All students enrolled in the lecture portion of the course must also be enrolled in a CHEM 1415 laboratory/recitation section. Appropriate attire is required in the laboratory at all times (safety goggles, appropriate clothing and shoes, etc.), and will be explained by your lab instructor.

**Placement exams:** The CLEP office conducts the exams to test out and obtain credit for CHEM 1315 and CHEM 1415. Contact the Department of Chemistry and Biochemistry Advisor, Mr. Lance Goins, for additional information (email ldg123@ou.edu or phone 325-4121).

**Last day to withdraw:** The final day to withdraw from the course is **April 1, 2016**. Students who stop attending but who do not officially withdraw from the course will be assigned a final course grade.

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**Need Additional Help?**

Besides normal class attendance in the lecture, recitation, and laboratory, students have several opportunities available to enhance their level of learning in the course.

**Help Lab:** The General Chemistry Help Lab is located in PHSC 303 and will be available starting the second week of class. The Help Lab, staffed by General Chemistry Teaching Assistants for both CHEM 1315 and CHEM 1415, is available for assistance on a walk-in basis [operational hours and staff to be posted to the course D2L website after the start of the term]. Students can ask questions regarding any course content (lecture, lab, recitation, etc.). An honest effort must have been made on assignments/problems so that the TA’s can adequately help to clarify concepts.

**University College’s Action Center and Action Tutoring:** The Chemistry 1415 Action Center is an active and collaborative forum in which students work on problems together and receive assistance from instructors and Peer Learning Assistants in order to understand and master general chemistry concepts. Participation in the Chemistry 1415 Action Center is strongly recommended for all students, whether you need assistance or you want to ensure your mastery of the concepts. Regular participation has been shown to lead to positive results in class performance. Bring your OU ID, text, and notes. UC Action Tutoring will be available on a drop-in basis during evening hours (8 – 10 p.m., usually Monday through Thursday) in Adams Center, Muldrow Tower 105, next to Cane’s Chicken. University College Action Tutoring begins the second week of class. These are free, come-and-go sessions with trained Peer Learning Assistants. To view the finalized schedule, or for more information, visit http://uc.ou.edu/action.

**Study Groups:** Self-organized and independent meetings of small groups of students on a regular basis (weekly or semi-weekly, for example) to discuss homework and previous exam problems serves as another possible way to help many students discover misunderstandings and improve their performance on examinations.

**Course Website:** A course website is available for CHEM 1415 at learn.ou.edu. The CHEM 1415 instructor(s) may make lecture notes available on the course website (download and print with Adobe® Reader). Check with your lecture instructor about this.

**Office Hours:** Laboratory and lecture instructors have office hours to help students. Students may either attend office hours or make an appointment to see an instructor at other times. You may attend any CHEM 1415 instructor’s office hours.

**Tutoring list:** The Undergraduate Program Assistant in the Department of Chemistry & Biochemistry office, Ms. Tanya Garvin (tgarvin@ou.edu or 325-4811), and Departmental Advisor, Mr. Goins (ldg123@ou.edu or 325-4121), maintain a list of tutors for private hire who may be interested in tutoring individual students or groups of students in chemistry courses. This is done only for the convenience of students and the Department of Chemistry and Biochemistry does not recommend the relative merits of the individuals who have requested to tutor students. Students interested in the tutor list are encouraged to consult with previous students for references and recommendations. This list is generally not available until the second week of class.
Previous Exams: Copies of recent exams are available online at the course website at https://learn.ou.edu. Although previous exams from past terms will be posted to D2L for concept practice, students should not expect the same format and/or question types on the current semester exams. The number of exam questions and point total per question will vary per question. Students should try to answer the questions on past examinations under testing conditions – i.e., without access to any book, notes, another student, or instructor. Students should be aware that past exams were not necessarily written by the current instructors and may be based on a different textbook from the one being used this semester. However, for the most part the topics will be comparable to the current syllabus. Please note that old exams are posted without corrections.

MasteringChemistry Homework and Lecture Prep Assignments: Homework problem sets and reading assignment sets are available through MasteringChemistry. You will have multiple attempts at each question. Additional practice problems (not for credit) can also be found at the end of the chapters in your textbook. The answers to many of these problems in the text are in the back of the textbook. These solutions should only be examined after working/attempts the problem.

Computer lab resources: The University has computer laboratories at several locations. Check www.ou.edu for campus resources.

Additional contact information relevant to CHEM 1415:

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>email</th>
<th>Office</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Clifford</td>
<td>Gen. Chem. Coordinator</td>
<td><a href="mailto:lclifford@ou.edu">lclifford@ou.edu</a></td>
<td>1570 SLSRC (TR)</td>
<td>325-4383</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>119 CHBA (MWF)</td>
<td>325-3316</td>
</tr>
<tr>
<td>Ms. Tanya Garvin</td>
<td>Undergrad. Program Assist.</td>
<td><a href="mailto:tgarvin@ou.edu">tgarvin@ou.edu</a></td>
<td>1000 SLSRC</td>
<td>325-4811</td>
</tr>
<tr>
<td>Ms. Kim Moser</td>
<td>ILS Coordinator</td>
<td><a href="mailto:Kimberly.A.Moser-1@ou.edu">Kimberly.A.Moser-1@ou.edu</a></td>
<td>CHBA 116</td>
<td>325-2742</td>
</tr>
<tr>
<td>Mr. Lance Goins</td>
<td>Dept. Advising Office</td>
<td><a href="mailto:ldg123@ou.edu">ldg123@ou.edu</a></td>
<td>CHBA 214</td>
<td>325-4121</td>
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<td>Classes Begin</td>
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<td>Lab Check-in</td>
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**CHEM 1415 Spring 2016 Calendar**
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EC LP = Extra Credit MasteringChemistry Lecture Prep Assignment
HW = Homework assignment
R = Recitation

**CHEM 1415 Spring 2016 Calendar**

Final Exam
7:30 - 9:30 p.m.
CHEMISTRY 1415
LABORATORY OUTLINE
Spring 2016

The following outline is a guideline for all sections of Chemistry 1415. Each teaching assistant may have some more specific instructions and requirements in certain areas. Please fill in the blanks that follow in order for you to have the correct information about your specific laboratory section.

Laboratory Instructor: ________________________________

Lab Section # ___________ Office Hours (PHSC 303) ___________

Lab Instructor email: ________________________________ Test Room ________________

Required materials:

1. **Laboratory activities**: Printed out from D2L website.
2. **Approved safety goggles**: Must be purchased by or at the first week of class

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**Laboratory Experiments:**

<table>
<thead>
<tr>
<th>Check-in</th>
<th>Beginning</th>
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<tbody>
<tr>
<td>13: The Rate and Order of a Chemical Reaction</td>
<td>Tues. Jan 26 – Mon. Feb. 1</td>
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<tr>
<td>14: Determination of an Equilibrium Constant</td>
<td>Tues. Feb. 2 – Mon. Feb. 8</td>
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<tr>
<td>15: Investigating Indicators</td>
<td>Tues. Feb. 9 – Mon. Feb. 15</td>
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<tr>
<td>16: Standardizing a Solution of Sodium Hydroxide</td>
<td>Tues. Feb. 16 – Mon. Feb. 22</td>
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<tr>
<td>17: Acid-Base Titrations</td>
<td>Tues. Feb. 23 – Mon. Feb. 29</td>
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<td>18: Buffers</td>
<td>Tues. March 1 – Mon. March 7</td>
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<td>19: Determining the Ksp of Calcium Hydroxide</td>
<td>Tues. March 8 – Mon. March 21</td>
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<tr>
<td>20: The Enthalpy of Neutralization of Phosphoric Acid</td>
<td>Tues. March 22 – Mon. March 28</td>
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<tr>
<td>21: Electrochemistry: Voltaic Cells</td>
<td>Tues. March 29 – Mon. April 4</td>
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<tr>
<td>22: Rate Determination and Activation Energy</td>
<td>Tues. April 5 – Mon. April 11</td>
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<tr>
<td>Check-out ($75 penalty if missed!)</td>
<td>Tues. April 12 – Mon. April 18</td>
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<td>Tues. April 19 – Mon. April 25</td>
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</table>

**Recitation**: Recitation Sections will meet every week from the first day to the last day of the term.

**Laboratory safety quiz**: The laboratory safety quiz on D2L must be completed by Friday, January 29, 2016. Failure to complete the laboratory safety video quiz will result in being removed from the course.
General Laboratory Information:

Lab check-in: Students will be assigned a locker on the first day of laboratory. Each student will account for his/her supplies at check-in and will vouch for the condition of the equipment, requesting replacements from the Instructional Laboratory Stockroom (ILS) for damaged or unusable items. All missing, broken, or damaged items should be replaced by ILS at this time. Any equipment that cannot be replaced by ILS on the first day of laboratory will be listed as a “check-in shortage” on the record card. During the semester, any equipment that is broken or damaged will be recorded on the record card. Students must use PEN when filling out their record cards at check-in.

Since students will often be sharing equipment with a lab partner, it is imperative that each student account for their equipment at the end of every laboratory period. Students are held financially responsible for all equipment issued to them at check-in. The cost of replacement/repair for missing/damaged equipment will be billed to students through the bursar’s office as a “breakage fee.” Please note that this “breakage fee” is not the same as the “service charge” paid with other registration fees. The “service charge” is intended to partially cover the cost of chemicals and other consumable items used in the laboratory.

Keep your equipment drawer locked. You will ultimately be responsible for equipment if it is stolen from you.

Lab check-out: Students must check out of their laboratory locker at the end of the term. Failure to check out on the assigned day at the assigned laboratory time will result in being assessed a $75 check-out fee. Students who withdraw from the class must attend the next regular laboratory session in order to check out of their locker or they will be assessed a $75 check-out fee. Students who withdraw may not arrange a special time with their TA in order to check out.

Attendance in lab: Attendance will be recorded within the first ten minutes of the laboratory period. Students who are not present at the time attendance is recorded will be considered absent and will not be allowed to make up the laboratory without a valid excuse (doctor’s note, University sponsored event, military duty, etc.). Attendance will be posted on D2L through the lab/recitation D2L page. Once posted, students will have one week to contact the TA regarding inaccuracies. After the one week period, no changes will be made. Students turning in lab reports for a laboratory period when they were absent will be charged with academic misconduct. Students must attend the laboratory check-out period at the end of the term or they will be assessed a $75 check-out fee. Any absences from the laboratory check-out due to valid reasons must be accompanied by written documentation or the $75 check-out fee will be assessed.

Make-up laboratories: If ill or if a student must be absent for a variety of valid, documentable reasons, a student must email their laboratory instructor prior to the start of the laboratory period regarding their absence. A doctor’s note is required for any absences due to illness. If a student must miss lab for other valid reasons (including but not limited to immigration status meetings, child custody hearings, government proceedings, etc.), written documentation is required from the source (not from a parent, spouse, or non-official source). Documentation of such absences must be submitted within one week of the missed laboratory period. All laboratories must be made up within one week of the excused absence.

Conduct: Each student is expected to conduct themselves accordingly both in lab and at the ILS. Any inappropriate behavior or comments to staff may result in being removed from the laboratory for the day. Students asked to leave the laboratory will not be allowed to make-up the missed laboratory.
Laboratory Grades

Grading: Laboratory grades will be based on eleven reports worth 15 pts each. No scores will be dropped. See the CHEM 1415 course syllabus calendar for a schedule of laboratory activities corresponding to The activities posted to the D2L course website. Make-ups for laboratories will require an appropriate and verifiable excuse. See your laboratory instructor for make-up procedures.

Your laboratory grade will depend on the laboratory reports, which you and your partner submit, and on pre-lab activities. Your laboratory instructor will grade these reports using specific criteria including:

1. Was the report submitted on time?
2. Did both students fully attend the laboratory session?
3. Does the work presented reflect the allotted time?
4. Is all the work of the lab exercise attempted?
5. Does the data reasonably reflect good laboratory technique?
6. Do the explanations and conclusions represent a good quantitative understanding of the laboratory exercise?
7. Are the conclusions logically related to the data collected by the students?

A portion of the laboratory report will be assigned as a pre-lab assignment, due by midnight the night prior to the student’s lab period. The lab/recitation instructor will provide more details on the pre-lab.

Laboratory Reports

Working in pairs: Students will work in pairs during most laboratory sessions, with a few exceptions. The partnership is expected to complete and turn in laboratory reports via their lab/recitation instructor’s D2L page dropbox (pre-lab activity scores apply to each student separately). Turnitin will be used for laboratory report submissions, checking for plagiarism.

The following regulations will apply to this policy:

1. If one partner is absent or late, the laboratory instructor will assign the attending student to another partner.
2. The laboratory instructor will reassign partnerships at his/her discretion or at a student request at any time during the term.
3. Students are free to work alone if they so desire.
4. Both partners must be present for the whole period to be eligible to receive credit for a laboratory report. The partner who misses a laboratory is solely responsible for making up the activity and will not be allowed to use his/her partner’s data.
5. No more than two students may constitute a partnership except by permission of the instructor.
6. Students are encouraged to finish and submit laboratory reports during the period of the laboratory activity when possible.
7. Students who are unable to submit laboratory reports at the end of the laboratory period should be prepared to submit a copy of their collected data to the instructor in charge before leaving.
8. Partners should submit reports and make conclusions based on their data collected by them, arrived at independently of other groups, and stated in their own words. Any evidence of
falsifying data, copying web content, or copying conclusions from other students (present or past) will be used in academic misconduct proceedings against the students involved.

9. Both partners are expected to contribute to the collection and interpretation of data and to the writing of the laboratory report. Students who do not do their part may be assigned a new partner or be asked to do their laboratory work independently.

10. Each student of the pair must submit a lab report via the laboratory instructor's D2L page dropbox.

Safety

Safety features of the lab: Your lab instructor will point out all the safety features of your lab during check-in. These include exits, fire extinguishers, safety showers, and eye washes. Other safety rules will be explained at that time.

Safety Goggles: The State of Oklahoma requires you to wear safety goggles in the laboratory at all times. Suitable goggles will be sold during the first two weeks of school in your lab. While other outlets also sell goggles, you must make sure they meet state safety standards for laboratory use before purchase. Your TA will expect you to wear your goggles OVER YOUR EYES at all times. Repeated disregard to this safety rule is grounds for your dismissal from lab.

Laboratory attire: For personal protection, safe dress for the laboratory is required in order to be adequately protected from chemical exposure. Students will be asked to leave if not appropriately attired for laboratory. Wear closed-toe and closed-heel shoes (no sandals, Crocs, mules, canvas shoes, etc.). No ballet-type flats. Wear pants, skirts, or dresses to the ankle. No shorts, tank tops, or spaghetti strap shirts are allowed. The purpose of restricting types of clothing is to make certain your skin is adequately protected.

Failure to comply with the dress code will result in the student being asked to leave the laboratory. Teaching Assistants, Instructors, Safety Committee members, and Chemistry & Biochemistry faculty members will ask any student not in compliance with the above safety attire (clothing, shoes, goggles, hair restraint, etc.) to leave the laboratory immediately. Students asked to leave the laboratory will not be given credit for the laboratory being performed and will not be allowed to make up the missed laboratory. The score for the lab will be a zero. In the event a student refuses to leave the laboratory after being asked to leave, the campus police will be summoned.

Please understand that the above regulations are not only to protect you from what you are doing during your experiments, but also to protect you from accidents caused by other students performing their experiments nearby your station.

Laboratory techniques & station: Part of safety is good laboratory technique and good housekeeping habits. Your laboratory instructor will teach you laboratory techniques related to the exercises you are performing during the semester. You should also read about the techniques described in the appendices of your laboratory manual. As part of a safe lab environment, you are responsible for seeing that your laboratory station is kept clean and neat. Store books, backpacks, and personal items in the cubicles provided in the laboratory. Make sure gas jets and water taps are off when not used, and that waste is disposed of properly. Laboratory instructors will give detailed instructions on how to dispose of each laboratory period's waste – students are responsible for disposing of waste properly according to these detailed instructions. Make sure that insoluble materials, paper, and broken glass are kept out of the sinks.
Instructional Laboratory Safety Rules and Procedures

In case of an accident, summon the laboratory instructor immediately. If you receive a chemical burn, immediately flush the burned area with cold water, then ask another student to summon the instructor immediately. Safety showers are available in all labs.

1. Approved safety goggles are to be worn by everyone in the laboratory whenever anyone is working. This is a State Law.
2. All personal belongings (book bags, purses, coats) should be stored in cubbyholes.
3. Shoes that cover your entire foot, including your heel, are to be worn at all times in the laboratory. Sandals and shoes with holes in them (e.g., Crocs) are not allowed.
4. Smoking is forbidden in the laboratory.
5. Eating or drinking in the laboratory is forbidden.
6. Always obtain the instructor's permission before carrying out any experiment that is not in the laboratory manual.
7. Students may not work in laboratories unattended. If make-up work is to be done, it must be carried out under supervision.
8. Never pour water into concentrated acids. Always pour acid slowly into water while constantly stirring.
9. If you are instructed to smell a chemical, gently fan the vapors toward your face. Never smell a chemical by putting your nose over the container.
10. Never take chemical bottles to your desk. Instead, obtain the material from the bottle in a clean container (beaker, flask, or weighing boat or paper). Do not take more material than you think you will need.
11. Never return unused chemicals to the bottles. Always return chemical bottles to their proper place so others can use them.
12. Always clean off your desktop thoroughly at the end of the period. Make certain that all gas outlets and water faucets are turned off before you leave the laboratory.
13. Spilled chemicals, broken glassware, etc. should be cleaned up carefully and without delay.
14. The floor should be kept free of obstructions or slipping hazards (e.g., spilled ice, pencils, etc.).
15. Insoluble materials (paper, glass, compounds, etc.) falling into a sink or drain should be removed immediately.
16. Under all circumstances, appropriate chemical disposal should be followed. Ask the instructor for specific information.
17. Never fill a pipette by mouth suction.
18. Before removing a chemical from a bottle, read the label carefully.
19. Acts of carelessness or mischief are forbidden. Chemicals and equipment may be handled only in prescribed ways and for prescribed purposes. Such “playful” activities as pushing and shoving, wrestling, chasing, and threatening people with any chemical or piece of equipment are not tolerated.
20. Gloves, rubber aprons, or other protective clothing should be worn when appropriate.

Normal penalty for violation of these rules is prompt dismissal from the class with no privilege of making-up work.

From a University Telephone dial Campus Police (Emergency Calls) at 911. They will contact whatever service is needed, be it fire, ambulance, or poison control. There is a campus emergency phone on the third floor hallway in CHBA.
**Attendance, Late Labs, Makeups**
Lab periods are three hours long. Please utilize this time wisely: planning your experiments, collecting data, and writing reports. If you elect to leave lab early, your lab report will be due at that time.

Unless prior arrangements have been made with your TA, or unless a documented health or personal emergency occurs, lab reports not turned in at the designated time will be penalized points up to a week late. Reports more than one week late will **not** be accepted.

If you miss a lab period for a legitimate reason, see your TA **as soon as possible**. A make-up slip will be issued to you, which will admit you to another laboratory section in order to make up your work. The make-up slip **MUST** be signed by the admitting TA and **MUST** be turned in with your completed report at the earliest opportunity. Work should be made up during the week of the missed laboratory. Please be prepared to provide documentation for missing a laboratory period.

Unfortunately, there is no provision for making up laboratory work past the makeup laboratory period scheduled for the week following checkout. This is true no matter what the reason.

**Codes and Policies**

**Reasonable Accommodation Policy:** The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Disability Resource Center prior to receiving accommodations in this course. The Disability Resource Center is located in Goddard Health Center, Suite 166, phone 405/325-3852 or TDD only 405/325-4173.

Any Student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact their lab instructor personally as soon as possible so they can discuss accommodations necessary to ensure full participation and facilitate their educational opportunities.

Each student should acquaint her or his self with the University's codes, policies, and procedures involving academic misconduct, grievances, sexual and ethnic harassment, and discrimination based on physical handicap.

**Religious Observance:** It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

**Adjustments for Pregnancy/Childbirth Related Issues:** Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your instructor as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see www.ou.edu/content/eoo/pregnancyfaqs.html for commonly asked questions.

**Title IX Resources:** For any concerns regarding gender-based discrimination, sexual harassment, sexual
misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on-call 24.7, counseling services, mutual no contact orders, scheduling adjustments and disciplinary sanctions against the perpetrator. Please contact the Sexual Misconduct Office 405-325-2215 (8-5) or the Sexual Assault Response Team 405-615-0013 (24.7) to learn more or to report an incident.

Syllabus: The instructor reserves the right to change any items contained in this syllabus. This includes, but is not limited to: course content, scheduled dates, and fraction(s) of final grade assigned to individual components of the course.

Email communication: In order to aid communication, the University has established email as an acceptable means of official communication. All University students are assigned an official University email account and your instructor and/or the General Chemistry Coordinator will be communicating with you through this account periodically. Email sent to this account is expected to be read by you in a timely fashion. For convenience, you can arrange to have your email forwarded to another email account (go to https://webapps.ou.edu/pass/); however, the University warns that you do so at your own risk. Failure to receive or read the communications sent to you via your official email account in a timely manner does not absolve you from knowing the information sent to you. Any correspondence with your instructor should include your name, section number, and the phrase “CHEM 1415” in the subject line.

Academic misconduct: Cheating in any form will NOT be tolerated. This includes copying old lab reports, copying other students' lab reports, plagiarizing (web content or other sources), self-plagiarizing (using your own work unmodified from a previous term) and falsifying data. You and your partner are encouraged to discuss your answers and calculations with other students in the lab, or with your lab instructor. However, the report should be written in your own words and based on your own work.

If you are caught cheating, the least that will happen to you is that your grade in laboratory will be lowered. You may also be failed in the course and suspended or expelled from the University. The small gains you might acquire by cheating are not worth the penalties if you are caught.
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**CHEM 1415 Spring 2016 Calendar**

**HW** = Homework assignment  
**R** = Recitation  
**ECLP** = Extra Credit MasteringChemistry Lecture Prep Assignment
EC LP = Extra Credit
LP = MasteringChemistry Lecture Prep Assignment
HW = Homework assignment
R = Recitation

**CHEM 1415 Spring 2016 Calendar**

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- **Final Exam**
  - 7:30 - 9:30 p.m.