Chemistry 1315 Course Outline, Summer 2013
Course Website: learn.ou.edu

Instructor Contact Information & Class Times

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<th>Instructor</th>
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<tbody>
<tr>
<td>Ms. Rebecca Eden</td>
<td>PHSC 434</td>
<td><a href="mailto:rebecca.m.eden@ou.edu">rebecca.m.eden@ou.edu</a></td>
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Instructor Office Hours

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Description: Chemistry 1315 is the beginning general chemistry course for students in the physical sciences, engineering, health sciences, biological sciences, and related fields.

Prerequisite: MATH 1503 or MATH 1643 or a Math ACT of ≥ 23.
Online homework & Quizzes: Sapling Learning (www.saplinglearning.com)
Personal Response Device (clicker): Turning Technologies RF LCD Response Card (www.turningtechnologies.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.

Extra credit homework problem sets (EC HW-#) and Quizzes 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. Quizzes and homework problems will be done via Sapling Learning, a computer-based problem-solving program. Extra credit homework problem sets 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 & Corresponding Reading Assignments

Unit 1 - Basic Concepts, Atoms, Molecules, & Ions - Chapters 1 & 2
1.1. Identify particle level representations of matter and their changes. [Readings 1.1, 1.2]
1.2. Convert units (e.g., length, mass, volume, temperature) within a unit system. [Readings 1.3, 1.6]
1.3. Convert units (e.g., length, mass, volume, temperature) between unit systems. [Readings 1.3, 1.6]
1.4. Combine measurements to calculate properties (e.g. density). [Readings 1.3]
1.5. Express measured and calculated quantities in exponential form. [Readings A.1, A.2]
1.6. Express measured quantities in the proper number of significant figures. [Readings 1.5]
1.7. Express calculated quantities in the proper number of significant figures. [Readings 1.5]
1.8. Trace the historical development of theories of matter. [Readings 2.1, 2.2]
1.9. State the name and symbol for the elements and their ions. [Readings 2.1, 2.4]
1.10. Characterize the important subatomic particles. [Readings 2.2, 2.3]
1.11. Determine the subatomic structure of atoms, ions, and isotopes. Use\(_{\text{charge}}^A\text{Z}_2\) notation. [Readings 2.3]
1.12. Characterize the various parts of the periodic table. [Readings 2.4]
1.13. Name and write formulas for simple compounds. [Readings 2.6, 2.7]

Unit 2 - Stoichiometry - Chapters 2, 3, & 4
2.1. Determine atomic weights from isotope abundances. [Readings 2.5]
2.2. Relate formula weights and moles to weights and numbers of particles in a chemical formula. [Readings 3.1, 3.4]
2.3. Determine the % composition of compounds. [Readings 3.2]
2.4. Determine molecular formulas from experimental analysis data. [Readings 3.5]
2.5. Write and balance simple chemical equations. [Readings 3.3]
2.6. Relate numbers of moles, grams, and particles in a chemical equation. (Including limiting reagents) [Readings 3.6, 3.7]
2.7. Determine and use molar concentration units. [Readings 4.5]
2.8. Use the MAVA = MBVB relationship to do dilution determinations. [Readings 4.5]
EXAM 1 – Friday, May 24, 2013 during lecture

Unit 3 - Thermochemistry - Chapters 5, 8, & 12
3.1. Utilize and convert different forms of energy. [Readings 5.1]
3.2. Determine the heat produced by a chemical or physical process from experimental data (calorimetry). [Readings 5.4]
3.3. Determine the heat produced during changes in state from experimental data. [Readings 12.6]
3.3a. Describe how heat is transferred in physical and chemical processes [Readings 5.4]
3.4. Given a thermochemical equation, calculate Δ H for a given amount of reactant or product. [Readings 5.3]
3.5. Apply Hess’ Laws to determine Δ H for reactions. [Readings 5.5]
3.6. Apply standard Δ Hf to determine Δ Hrxn of reactions. [Readings 5.6]
3.7. Use bond energies to predict Δ Hrxn. [Readings 8.9]

Unit 4 - Atomic Structure & Periodicity - Chapters 6 & 7
4.1. Relate color, λ, v, speed, and energy of light being released or absorbed by atoms. [Readings 6.1, 6.2]
4.2. Interpret the line spectrum of an atom in terms of quantum mechanics. [Readings 6.3-6.5]
4.3. Describe the location and nature of electrons in an atom or ion in terms of: (a) quantum numbers, (b) energy level diagrams, (c) electron configuration, and (d) orbital shape. [Readings 6.6-6.8]
4.4. Relate the periodic table to electron configurations. [Readings 6.9, 7.1, 7.2]
4.5. Predict trends; similarities, and differences of physical and chemical properties of elements using the periodic table and electron configuration. (e.g. ionization energy, radius, formulas, reactivity). [Readings 7.3, 7.4, 7.6, 7.7]

EXAM 2-Thursday, June 6, 2013 during lecture (last day to drop with W)

Unit 5 - Molecular Structure & Bonding - Chapters 8 & 9
5.1. Predict the relative polarity and ionic/covalent character of bonds and molecules. [Readings 8.4]
5.2. Identify simple bonding types. [Readings 8.2, 8.3]
5.3. Draw Lewis structures of ions and molecules. [Readings 8.1, 8.5, 8.6, 8.8 and Laboratory H]
5.4. Identify resonance structures for molecules. [Readings 8.7]
5.5. Determine the geometric arrangement of atoms in a molecule. [Readings 9.1, 9.2, and Laboratory H]
5.6. Predict the types of orbitals (including hybrids) involved in bonding and resulting bond types (sigma, pi). [Readings 9.3-9.5]

Unit 6 - Properties of Gases - Chapter 11
6.1. Describe measuring gas pressures using barometers and manometers. Relate pressure units. [Readings 11.1]
6.2. Apply the ideal gas law to relate and calculate values for pressure, volume, temperature, and amount of a gas. [Readings 11.2-11.4]
6.3. Apply Dalton’s Law of partial pressure to calculate the pressure of combined gases and to calculate the partial pressures of gases in mixtures. [Readings 11.5]
6.4. Describe gases in terms of KMT. [Readings 11.6]
6.5. Relate MW and speeds of molecules using Graham’s law. [Readings 11.6]
6.6. Distinguish between ideal and real gases. [Readings 11.7]

EXAM 3 – Wednesday, June 19 during lecture

Unit 7 - Properties of Liquids, Solids, & Solutions - Chapters 12, 13, 4
7.1. Use KMT to explain the general properties of liquids and solids and to explain phase changes. [Readings 12.6]
7.2. Classify intermolecular bonds and predict relative properties of chemical substances. [Readings 12.1]
7.3. Describe the structure and properties of liquids. [Readings 12.2]
7.4. Describe the structure and properties of solids. [Readings 12.3-12.5]
7.5. Interpret phase diagrams. [Readings 12.7]
7.6. Identify the composition of a solution. [Readings 13.1]
7.7. Characterize the dissolving process. Characterize hydrolysis. [Readings 13.1, 13.2]
7.8. Predict products of precipitation reactions. [Readings 4.2]
7.9. Characterize solutions as strong electrolytes, weak electrolytes, and nonelectrolytes. [Readings 4.1]
Unit 8 - Organic Chemistry - Chapter 10
8.1. Describe the bonds associated with organic molecules. [Readings 10.1, 10.3]
8.2. Use IUPAC system to name simple organic compounds. [Readings 10.2]
8.3. Identify types of organic molecules according to functional group. [Readings 10.2]
8.4. Characterize the simple reactions of organic molecules. [Readings 10.5]
8.5. Identify isomers of simple organic compounds. [Readings 10.4]
8.6. Characterize the formation of polymers. [Readings 10.6]

EXAM 4 – Friday June 28, 2013 during lecture time

Examinations:
Exam organization: The course content in CHEM1315 is divided into eight units. Each unit on an examination will consist of ten multiple-choice questions, each question worth 5 points. The chapters of the text covered on each exam are listed by the reading assignments within each learning objective. One or more questions per examination may cover laboratory concepts, one or more questions may be based upon the extra credit homework problem sets, and one or more questions may reflect online quiz content.

Make up/Retake of Exams: Students who miss an exam or those who are dissatisfied with their performance have an opportunity to make up an exam or to improve their score by retaking individual units, respectively, on a succeeding exam. Exams 2, 3, and 4 contain questions from the last two units covered on the previous exam. For example, Exam 2 covers new units 3 & 4 and repeats units 1 & 2. At any exam, you may answer the questions for any unit offered that you desire. You do not have to take all of the units offered if you are satisfied with your previous unit attempt. The higher of the two attempts, not the second attempt, is used in the final grade calculation. Please note: Units 7 & 8 are only offered once (exam 4). Your final grade for examinations will be calculated by taking the highest score you received on the first six units plus the scores earned for units 7 & 8.

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 [time/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 each exam week: Name, I.D., Lecture Instructor, Lab Instructor, Reason why you cannot attend the scheduled exam, Name and phone number where excuse can be verified. Submit registration by email to Ms. Eden, the coordinator for general chemistry courses [rebecca.m.eden@ou.edu]. Include “CHEM 1315 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.

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 cellular phones, pagers, FM receivers, headphones, music devices of any sort, etc. are banned from examination rooms. Individuals for whom circumstances make the possession of such devices necessary must inform their laboratory instructor prior to an examination to make arrangements. Students found with an unauthorized communication device at an examination will be charged with academic misconduct, whether or not the device was in use at the time it was discovered.

Approved calculators only: Calculators with programmable functions and/or alphanumeric storage/recall capability (this includes graphing calculators) are not allowed for quizzes and examinations. A partial approved list of calculators can be found on the website for the course [https://learn.ou.edu]. You will be expected to use an approved calculator on all quizzes and examinations. Students using calculators on exams that have not been approved may be charged with academic misconduct.

Exam location: Exams will be held in the regular lecture location. 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.

Laboratory:

Required materials:
• Turning Technologies RF LCD Response Card clicker (www.turningtechnologies.com) – also used in lecture & recitation
• Approved safety goggles: Must be purchased by the first day of lab
• Model kit: may purchase any model kit or even share a kit with individuals not in your lab/recitation section.
**Lab check-in/check-out:** Each student 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 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.

**Grading:** Laboratory grades will be based on one laboratory report worth 10 pts and ten reports worth 15 pts each. See the attached calendar (last page of syllabus) for a schedule of laboratory activities corresponding to your laboratory manual. Laboratory instructors may use clickers to assess part of the laboratory report grade as a pre-lab quiz. Make-ups for laboratories will require an appropriate and verifiable excuse. See your laboratory instructor for appropriate make-up procedures.

**Attendance in lab:** Attendance in laboratory will be taken using the Turning Technologies LCD RF response card (clicker). Attendance will be recorded within the first ten minutes of the laboratory period. Students who are not present at the time attendance is recorded via clicker 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.). 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.

**Absences from lab due to illness:** If ill, a student must email their laboratory instructor prior to the start of the laboratory period regarding their absence due to illness or else a laboratory make-up will not be allowed. Only one laboratory per term may be made up due to illness without an accompanying doctor’s note. If a student has more than one absence over the term due to illness, a doctor’s note must be presented for each subsequent absence.

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**Recitation:**

**Required materials:**
- Turning Technologies RF LCD Response Card clicker (www.turningtechnologies.com) – also used in lecture & lab
- Model kit: may purchase any model kit or even share a kit with individuals not in your lab/recitation section.

**Grading:** Thirteen recitation grades will be recorded with the best ten out of the thirteen applied to the final grade calculation. This will be added to three selected computer recitation exercises @ 10 pts each. 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 three times a 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 three 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.

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**Online quizzes (Sapling Learning):**

**Required materials:**
- Access through Sapling Learning (www.saplinglearning.com)

**Grading:** Online quiz scores will be assessed for each of the eight units covered. These quizzes are designed to help students prepare for the examinations and will be available through Sapling Learning [www.saplinglearning.com]. Quizzes are worth five points per unit and cover the content of the course learning objectives. Each online quiz question may be attempted up to 5 times. Online quiz scores will not count unless submitted by the deadlines (date and time) indicated on Sapling’s website. 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 quizzes. The Sapling Learning server time may differ from your clock, so submit your quiz well in advance of the due date time.

**Make-ups:** There are no make-ups for online quizzes.
General notes on grading & grade discrepancies:

**D2L:** Grades may be viewed on the D2L website for the course (learn.ou.edu). Please note that 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.

**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 us with the original, graded lab or recitation assignment. Discrepancies in lab report grades or recitation assignments should be reconciled with your laboratory/recitation instructor. Discrepancies with exam grades should be resolved by bringing your student ID and your exam paper (blue/pink/tan/gold exam) to request a hand-grade of the scantron from the Undergraduate Program Assistant, Ms. Kristie Tevault (1000 SLSRC, 8 a.m. – 5 p.m.). Discrepancies in Sapling Learning quiz grades should be reported to the Ms. Eden.

**Extra Credit:** In addition to the course points assigned above, extra credit points are available for ONLY (1) in-class lecture activities and (2) the Sapling Learning extra credit homework problem sets (designated as EC HW-# on the syllabus calendar). These extra credit homework problem sets are not to be confused with the online quizzes that are also available through Sapling learning. Deadlines for extra credit homework problem sets are available on the syllabus calendar and on saplinglearning.com.

**In-Class (lecture) extra credit:** Instructors will use Turning Technologies LCD RF response cards (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.

**Sapling Learning Online Homework:** Sapling Learning (www.saplinglearning.com) will be used for online homework in the course. A maximum of 32 points will be awarded through the homework extra credit, with a maximum of four points of extra credit awarded per Unit. Earning 80% of the points possible on the assignment yields the full 4 points of extra credit, 70-80% yields 3 points, 60-70% yields 2 points, and 50-60% yields 1 point. Earning less than 50% of the assignment points will not result in any extra credit points being awarded. Due dates for the online homework extra credit are variable – check the syllabus calendar (back page of syllabus). It is strongly advised that students work on problems as the topics are covered, avoiding the tendency to wait until the night before the assignment is due.

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**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.

**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 1315” in the subject line.
**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 Norman Campus Academic Misconduct Code. Cheating of any kind will not be tolerated. Cheating is defined as an act performed so as to give a relative or unfair advantage to any person on an exam or assignment. Cheating 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.

**Class conduct:** Students are expected to be attentive during course and lab/discussion lectures and to remain seated until the end of the period. 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 manuals, 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 1315 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:** Advanced placement exams for general chemistry courses (CHEM 1315 and/or CHEM 1415) should be arranged by contacting the Department of Chemistry and Biochemistry Advisor, Mr. Lance Goins, for additional information (email ldlg123@ou.edu or phone 325-4121).

**Last day to withdraw:** The final day to withdraw from the course is Thursday, June 6, 2013. 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 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 on M-W when lab is not held during your scheduled lab time. The Help Lab is staffed by your regular lab/recitation TAs. 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.

**Action Center Tutoring:** The Chemistry 1315 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. Tutoring with an Action Center is arranged by appointment by contacting the Action Center by the following methods: studentlearning@ou.edu, coming by Wagner Hall 245, or calling 405-325-7621.

**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. A discussion forum has been opened on D2L organization of such groups and communication within established groups.

**Course Website:** A course website is available for CHEM1315 at learn.ou.edu. I will make lecture notes available on the course website (download and print with Adobe® Reader). If you are printing out the lecture notes at a computer lab, please be certain to print to the correct printer. In the past, course notes have ended up being printed out all over campus.

**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 1315 instructor’s office hours.

**Tutoring list:** The Undergraduate Program Assistant in the Department of Chemistry & Biochemistry office, Ms. Kristie Tevault (ktevault@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.
**Previous Exams:** Sample practice exams will be provided to demonstrate the style of questions that may be asked. These samples to not represent the full scope of questions that can be asked. Any lectured material or materials covered in the outlined topics in the text is possible.

**Homework:** Extra credit homework problem sets are available through Sapling Learning (saplinglearning.com). You will have multiple attempts at each question. Extra credit points will be available to students who correctly complete homework problem sets.

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. Worked out answers for these problems are available in the solutions manual on reserve in the Main Library (ask for the CHEM 1315 Solution Manual). These solutions should only be examined after working/attempting the problem.

**Computer lab resources:** The University has computer laboratories at six locations: 232 PHSC, Dale Hall Tower, Walker Tower, Couch Tower, Bizzell Memorial Library, and the Oklahoma Memorial Union. These facilities are open for student use seven days a week at hours posted in each lab. Both IBM and Macintosh computers are available.

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<th>email</th>
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<tbody>
<tr>
<td>Ms. Kristie Tevault</td>
<td>Undergrad. Program Assist.</td>
<td><a href="mailto:ktevault@ou.edu">ktevault@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>
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<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>
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</tr>
<tr>
<td>Recitation</td>
<td>No Class</td>
<td>CL-1</td>
<td>R-6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Jun</td>
<td>4-Jun</td>
<td>5-Jun</td>
<td>6-Jun</td>
</tr>
<tr>
<td>Lecture</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>EXAM 2</td>
</tr>
<tr>
<td>Lab</td>
<td>F-1</td>
<td>F-S</td>
<td>Help Lab</td>
<td></td>
</tr>
<tr>
<td>Recitation</td>
<td>R-7</td>
<td>R-8</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-Jun</td>
<td>11-Jun</td>
<td>12-Jun</td>
<td>13-Jun</td>
</tr>
<tr>
<td>Lecture</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Lab</td>
<td>H-1</td>
<td>H-1 cont.</td>
<td>E1-ab</td>
<td></td>
</tr>
<tr>
<td>Recitation</td>
<td>R-9</td>
<td>R-10</td>
<td>CL-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-Jun</td>
<td>18-Jun</td>
<td>19-Jun</td>
<td>20-Jun</td>
</tr>
<tr>
<td>Lecture</td>
<td>6</td>
<td>6</td>
<td>EXAM 3</td>
<td>7</td>
</tr>
<tr>
<td>Lab</td>
<td>E1-C &amp; S</td>
<td>Help Lab</td>
<td>Check Out</td>
<td></td>
</tr>
<tr>
<td>Recitation</td>
<td>R-11</td>
<td>Review</td>
<td>R-12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24-Jun</td>
<td>25-Jun</td>
<td>26-Jun</td>
<td>27-Jun</td>
</tr>
<tr>
<td>Lecture</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Lab</td>
<td>Comp. Lab</td>
<td>Comp. Lab</td>
<td>Comp. Lab</td>
<td></td>
</tr>
<tr>
<td>Recitation</td>
<td>R-13</td>
<td>CL-3</td>
<td>Review</td>
<td></td>
</tr>
</tbody>
</table>
**Evaluation (grading) in the course:**

A total of 680 points are possible for CHEM 1315.

Letter grades will be assigned based on the 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>612</td>
<td>A</td>
</tr>
<tr>
<td>80%</td>
<td>544</td>
<td>B</td>
</tr>
<tr>
<td>65%</td>
<td>442</td>
<td>C</td>
</tr>
<tr>
<td>50%</td>
<td>340</td>
<td>D</td>
</tr>
<tr>
<td>Below 50%</td>
<td>&lt;340</td>
<td>F</td>
</tr>
</tbody>
</table>

The 680 points possible in CHEM 1315 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>Examinations</td>
<td>Eight units @ 50 pts each</td>
<td>400 pts</td>
</tr>
<tr>
<td>Laboratory Reports</td>
<td>One @ 10 pts and ten @ 15 pts each</td>
<td>160 pts</td>
</tr>
<tr>
<td>Computer Recitation Activities</td>
<td>Three @ 10 pts each</td>
<td>30 pts</td>
</tr>
<tr>
<td>Recitation Scores</td>
<td>Thirteen recitation scores @ 5 pts each, best ten used toward final grade</td>
<td>50 pts</td>
</tr>
<tr>
<td>Online Quizzes</td>
<td>Eight quizzes, one per unit, @ 5 pts each</td>
<td>40 pts</td>
</tr>
<tr>
<td></td>
<td><strong>Total points possible = 680</strong></td>
<td></td>
</tr>
</tbody>
</table>

In order to keep track of your overall grade, use the charts below to record your grades as they are earned during the term:

**Exams (50 pts. possible per unit)**

<table>
<thead>
<tr>
<th></th>
<th>Unit 1</th>
<th>Unit 2</th>
<th>Unit 3</th>
<th>Unit 4</th>
<th>Unit 5</th>
<th>Unit 6</th>
<th>Unit 7</th>
<th>Unit 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam 2</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam 3</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam 4</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Laboratory Grades** (Lab B-3 is worth 10 pts, all others are worth 15 pts)

<table>
<thead>
<tr>
<th>Lab Scores</th>
<th>B-3</th>
<th>C-1</th>
<th>C-2</th>
<th>C-5</th>
<th>D-1</th>
<th>D-5</th>
<th>F-1</th>
<th>F-5</th>
<th>H-1/H-1con’t</th>
<th>E-1A,B</th>
<th>E-1C,S</th>
</tr>
</thead>
</table>

**Recitation Grades** (Each worth 5 pts, best eight of the eleven scores count toward final grade)

<table>
<thead>
<tr>
<th>Rec. Scores</th>
<th>R-1</th>
<th>R-2</th>
<th>R-3</th>
<th>R-4</th>
<th>R-5</th>
<th>R-6</th>
<th>R-7</th>
<th>R-8</th>
<th>R-9</th>
<th>R-10</th>
<th>R-11</th>
<th>R-12</th>
<th>R-13</th>
</tr>
</thead>
</table>

**Computer Recitation Labs** (worth 10 pts each)

<table>
<thead>
<tr>
<th>Computer Labs</th>
<th>CL-1</th>
<th>CL-2</th>
<th>CL-3</th>
</tr>
</thead>
</table>

**Sapling Online QUIZ Grades** (Each Quiz unit is worth 5 pts)

<table>
<thead>
<tr>
<th>Quiz Scores</th>
<th>Unit 1</th>
<th>Unit 2</th>
<th>Unit 3</th>
<th>Unit 4</th>
<th>Unit 5</th>
<th>Unit 6</th>
<th>Unit 7</th>
<th>Unit 8</th>
</tr>
</thead>
</table>

**Sapling Online HOMEWORK Grades** (Each Quiz unit is worth 4 pts)

<table>
<thead>
<tr>
<th>Homework pts</th>
<th>Unit 1</th>
<th>Unit 2</th>
<th>Unit 3</th>
<th>Unit 4</th>
<th>Unit 5</th>
<th>Unit 6</th>
<th>Unit 7</th>
<th>Unit 8</th>
</tr>
</thead>
</table>

9
CHEMISTRY 1315  
Laboratory & Recitation Outline  
Summer 2013

The following outline is a guideline for all sections of Chemistry 1315. 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 laboratory section. A directory of teaching assistants and other personnel will be posted on the bulletin board outside of CHBA 116 and on the course web site.

Laboratory Instructor ___________________________ Lab/Office Room # ___________

Section Code_________  Section #_________  Office Hours (PHSC 303)__________________

Office Phone (optional)_______________________

Required materials:
3. **Turning Technologies RF LCD Response Card clicker** ([www.turningtechnologies.com](http://www.turningtechnologies.com))
4. **Approved safety goggles**: Must be purchased by the second week of class
5. **Model kit**: may purchase any model kit or even share a kit with individuals *not* in your lab/recitation section.

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab</th>
<th>Recitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, May 13, 2013</td>
<td>Check-in</td>
<td>R-1</td>
</tr>
<tr>
<td>Tuesday, May 14, 2013</td>
<td>B-3</td>
<td>R-2</td>
</tr>
<tr>
<td>Wednesday, May 15, 2013</td>
<td>C-1</td>
<td>R-3</td>
</tr>
<tr>
<td>Monday, May 20, 2013</td>
<td>C-2</td>
<td>R-4</td>
</tr>
<tr>
<td>Tuesday, May 21, 2013</td>
<td>C-S</td>
<td>R-5</td>
</tr>
<tr>
<td>Wednesday, May 22, 2013</td>
<td>Help Lab PHSC 303</td>
<td>Review</td>
</tr>
<tr>
<td>Tuesday, May 28, 2013</td>
<td>D-1</td>
<td>CL-1</td>
</tr>
<tr>
<td>Wednesday, May 29, 2013</td>
<td>D-S</td>
<td>R-6</td>
</tr>
<tr>
<td>Monday, June 03, 2013</td>
<td>F-1</td>
<td>R-7</td>
</tr>
<tr>
<td>Tuesday, June 04, 2013</td>
<td>F-S</td>
<td>R-8</td>
</tr>
<tr>
<td>Wednesday, June 05, 2013</td>
<td>Help Lab PHSC 303</td>
<td>Review</td>
</tr>
<tr>
<td>Monday, June 10, 2013</td>
<td>H-1</td>
<td>R-9</td>
</tr>
<tr>
<td>Tuesday, June 11, 2013</td>
<td>H-1 cont</td>
<td>R-10</td>
</tr>
<tr>
<td>Wednesday, June 12, 2013</td>
<td>E1-ab</td>
<td>CL-2</td>
</tr>
<tr>
<td>Monday, June 17, 2013</td>
<td>E1-c&amp;S</td>
<td>R-11</td>
</tr>
<tr>
<td>Tuesday, June 18, 2013</td>
<td>Help Lab PHSC 303</td>
<td>Review</td>
</tr>
<tr>
<td>Wednesday, June 19, 2013</td>
<td>Check Out, <strong>if missed a $75 NO Check-out fee will be assessed</strong></td>
<td>R-12</td>
</tr>
<tr>
<td>Monday, June 24, 2013</td>
<td>Computer Lab PHSC</td>
<td>R-13</td>
</tr>
<tr>
<td>Tuesday, June 25, 2013</td>
<td>Computer Lab</td>
<td>CL-3</td>
</tr>
<tr>
<td>Wednesday, June 26, 2013</td>
<td>Computer Lab</td>
<td>Review</td>
</tr>
</tbody>
</table>
Recitation: Recitation Sections will meet Mondays, Tuesdays and Wednesdays of every week for the entire term.

The recitation grade will consist of two parts. Three scheduled computer labs (detailed below), worth 10 points will be done at the designated times. The ten best out of thirteen regular graded recitation days, labeled by R-number, worth 5 points each are added for the total recitation grade.

(CL-1) Thermo: Introduction to Laboratory Simulations (p.161) and Heats of Solutions (p.179 – 185)
(CL-3) Isomers: Introduction to Molecular Modeling (p.131 – 133); Isomers (p.151–156)

General Laboratory Information:

Lab check-in: Each student will be assigned their own individual 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 in laboratory will be taken using the Turning Technologies LCD RF response card (clicker). Attendance will be recorded within the first ten minutes of the laboratory period. Students who are not present at the time attendance is recorded via clicker 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.). Students turning in lab reports for a laboratory period when they were absent will be charged with academic misconduct.

Absences from lab due to illness: If ill, a student must email their laboratory instructor and Ms. Eden (rebecca.m.eden@ou.edu) prior to the start of the laboratory period regarding their absence due to illness or else a laboratory make-up will not be allowed. Only one laboratory per term may be made up due to illness without an accompanying doctor’s note. If a student has more than one absence over the term due to illness, a doctor’s note must be presented for each subsequent 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 one laboratory report worth 10 pts and ten reports worth 15 pts each. See the CHEM 1315 course syllabus calendar for a schedule of laboratory activities corresponding to your laboratory manual. Laboratory instructors may use clickers to assess part of the laboratory report grade as a pre-lab quiz. Make-ups for laboratories will require an appropriate and verifiable excuse. See your laboratory instructor for appropriate make-up procedures.

Your laboratory grade will depend on the laboratory reports, which you and your partner submit, and on pre-lab quizzes. 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?
8. Was there visible contribution by both students in both collection and interpretation?
9. Was waste recorded correctly? (See below)

These criteria will be applied to the laboratory report as a whole rather than to individual sections of the report. Laboratory reports are assigned grades between 0 and 15 points.

**Laboratory Reports**

**Working in pairs:** Students will work in pairs during most laboratory sessions, with a few exceptions and reports will be turned in for partners. The partnership is expected to complete and turn in one laboratory report for which the partners will receive the same grade for the written laboratory portion (pre-lab quiz scores apply to each student separately).

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.
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 dishonesty 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.

**Systems Labs**

Systems labs scheduled during the term which are performed in pairs but the reports are written individually. These experiments are designated by S. These reports have a format that is included in the Lab manual on page 275. Additional guidance specific to each experiment will be provided by your lab instructor which should include pre-lab guidance. This may be covered during recitation.

**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 their instructors 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.

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**Safety**

**Safety Video:** On your lab D2L (learn.ou.edu) web page there is a safety quiz with a video link that MUST be viewed and completed before the first lab experiment (B-3) is performed. Laboratory activities beyond check–in cannot be performed until this video and quiz are complete. A zero grade will be given for the lab experiments that cannot be performed. If the video is not completed prior to the third lab period (C-1) you will be removed from the course and responsible for check-out of your lab drawer (or the $75 no check-out fee).

**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 day of 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 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.
Lab Waste
All chemicals used in this lab produce waste of different types according to regulating agencies. The specific containers for the disposal of this waste will be directed by your Lab Instructor but you are ULTIMATELY RESPONSIBLE for recording the chemicals in that waste as it is disposed. You MUST record all chemicals on the appropriate waste sheet for the proper disposal container including amounts and concentrations. If a flask requires rinsing with water to dislodge material this too MUST be recorded. Failure to follow proper waste recording procedures can result in 2 points deducted from the relevant lab report.

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. Please be prepared to provide documentation for missing a laboratory period. A make-up lab will be available at the end of the semester for those who for legitimate reasons could not do make up work in a timely manner during the semester. Students can only use this make up lab by making prior arrangement with their lab instructor.

Codes and Policies Behavior
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.

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), 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.