This syllabus is to be used as a guideline only. The information provided is a summary of topics to be covered in the class. Information contained in this document such as assignments, grading scales, due dates, office hours, required books and materials may be from a previous semester and are subject to change. Please refer to your instructor for the most recent version of the syllabus.
Instructor: Dr. Amy L. Graham (grahama@email.arizona.edu); 621-3428
Office Hours: Old Chem 242: Monday 4-5pm; Wednesday noon-2pm (any changes to office hours will be posted weekly in Sapling)
Credits: 4 (3 hours lecture, 4 hours laboratory)
Prerequisites: CHEM 151; MATH 110 or an equivalent level of proficiency as demonstrated by the Math Readiness Test score.
Lectures: MWF 3:00-3:50pm, Koffler 204
MW 6:00-7:15pm, Koffler 204
Tutor Hours: Koffler 202 (hours are posted outside of the TSO window, Koffler 201)

There is a separate syllabus for the Laboratory Portion of this course—go to http://quiz2.chem.arizona.edu/151lab/

COURSE WEBSITES
Scores will be posted on D2L (http://d2l.arizona.edu). After logging in using your UANetID, you will find some course materials and your grades for this class. Most of your course materials will be found on the Sapling Learning website (https://www.saplinglearning.com/), the online homework system.

COURSE OBJECTIVE
Chemistry 152 is an integrated lecture-lab course designed to develop a basic understanding of the central principles of chemistry that are useful to explain and predict the reactivity of chemical substances. Additionally, students will be introduced to modern laboratory techniques and participate in experimental activities that promote the development of basic and advanced science critical thinking skills. The course is designed for students who require a strong foundation in general chemistry, such as science and engineering majors, and pre-medical and pre-pharmacy students.

COURSE OUTLINE
UNIT 1 Kinetics
UNIT 2 Equilibrium (Acid-Base, Buffers, Solubility)
UNIT 3 Thermodynamics
UNIT 4 Electrochemistry

TEXTBOOK
The textbook is a useful reference to study, get more information, solve problems, etc., but is only a tool. Lectures will not be strictly based on the textbook. Examinations and problems sets will contain material from both the powerpoints and the class lectures. It is recommended you acquire a university level general chemistry textbook for the course (only one text book is necessary). Here is a list of some suggestions but there are other options as well. If you have a book that is not on the list, please bring it to your instructor to see if it will be suitable.

You may choose hardcover, 3-ring punch, or ebook.

- Brady, J. E., Senese, F. Chemistry Matter and Its Changes.
- Chang, R. Chemistry.
- Silberberg, M. S. The Molecular Nature of Matter and Change.

Required LABORATORY Textbook:
REQUIRED MATERIALS
The use of a scientific calculator is essential for chemistry examinations and assignments. All students must
own and be able to use a calculator with the capability for basic arithmetic functions, exponentials, and
logarithms. They will also need a periodic table to be used in the different class sessions, and a lab notebook
goggles and a lab coat for the experimental activities. (Cell phones are NOT acceptable calculators for exams.)

Sapling Learning System: Each student is required to complete online homework as it is assigned
through Sapling Learning. Instructions for getting on the sapling site are on D2L. Homework will be worth
10% of your lecture grade and a portion of your lab grade. These assignments reinforce the materials discussed
in the lab and lecture, and provide an outlet to practice your understanding of chemistry. Sapling will also be
the place for course files, announcements, etc.

ASSESSMENT
• Students will complete investigations in the laboratory. Experimental work is a central component of this
course and it will be worth 25% of the final grade. Students must receive a passing grade in the lab in
order to pass the course.
• There will be 4 partial exams during the semester. Partial exams are worth a 48% of the final grade (12%
each). Exams will require solving both conceptual questions and quantitative problems. The covered
material will span the topics indicated in the course outline. Partial exams for all course sections will be on
Fridays from 5:00-6:30pm in a location to be determined on the following dates:
   February 7
   March 7
   April 11
   May 2
• The final examination is comprehensive and is worth 12% of the final grade. The final exam will be held
from 6:00-8:00 pm on Monday, May 12, in a room to be announced.
• Homework assignments will be conducted online via Sapling Learning System. Completion of the
homework assignments is required and it is worth 10% of the final grade.
• Lecture participation and attendance is worth 5% of the final grade.
• Scores will be posted online on D2L (http://d2l.arizona.edu).

Final grades will be based on the following weighting scheme:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>25%</td>
</tr>
<tr>
<td>Partial Exams (12% × 4)</td>
<td>48%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>12%</td>
</tr>
<tr>
<td>Sapling Lecture Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Participation/Attendance</td>
<td>5%</td>
</tr>
</tbody>
</table>

LETTER GRADES
The following table is a guideline for the final grades for the course:

<table>
<thead>
<tr>
<th>PERCENT</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100 %</td>
<td>A</td>
</tr>
<tr>
<td>80-89 %</td>
<td>B</td>
</tr>
<tr>
<td>70-79 %</td>
<td>C</td>
</tr>
<tr>
<td>60-69 %</td>
<td>D</td>
</tr>
<tr>
<td>0-59 %</td>
<td>E (Fail)</td>
</tr>
</tbody>
</table>

At the end of the semester, there might be slight adjustments to the above scale, but individual items will not be curved.
EXAM DATES
The ‘midterm’ exams will be held on Fridays (February 7, March 7, April 11, May 2) from 5:00-6:30pm in a location to be determined.

MISSED EXAMS
There will be no make-up examinations. Some form of accommodation will be made in the event of extraordinary circumstances such as serious illness, accident, or family emergency. All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion. Absences pre-approved by the Dean of Students or the Dean of the College of Science will be honored. Please see me as soon as you are aware of the conflict to arrange for a Dean-approved absence.

EXAM REGRADES
Regrades are accepted to correct totaling errors. If you are confident that an error has occurred (carefully compare your answers with those on the posted answer key), you must submit your regrade to me in person before the next exam. An exam may be submitted for regrade only once—be sure you review everything! Fishing expeditions for extra points are not viewed favorably – please make sure you have a legitimate error. You can also lose points with a regrade.

WITHDRAWAL FROM THE COURSE
Students should check the Schedule of Classes for the last day to drop the course resulting in deletion of course enrollment from record or to withdraw. The last day to drop with no record on your transcript is February 11. The last day to withdraw with a W (if passing the course) on your transcript is March 11. After these dates, the letter grade earned in the course will be awarded. A grade of I (incomplete) will not be given to cover a low grade. Incompletes are only given in the specific case of a student who is passing the course and has missed a portion of the assigned work because of documented illness or other extreme cause.

ATTENDANCE AND PARTICIPATION
Attendance and participation in class is important, and thus may be taken into account in assigning the final grades for the course. Students are responsible for all information and materials presented in the lecture whether or not they were present. Students are required to perform all scheduled lab experiments. Should they miss a scheduled lab class, the work must be made up. Missing or failing to make up two or more experiments will cause students to fail the course. Make-up Labs are scheduled to accommodate students doing make-up work. The Teaching Service Office (TSO) in Koffler 201 can provide more details.

GROUP WORK
We recommend that you form student groups in lecture. It will be most beneficial if you sit in these groups each lecture. This will help you get to know each other and work well with the group – and there will be group activities in lecture. It is important that every member of the group understand the activity before moving on. It is also encouraged to use these as study groups outside of class.

FREE TUTORING IN CHEMISTRY
Graduate assistants in chemistry will be available to help students enrolled in the course in Koffler 202. The Teaching Service Office (TSO) in Koffler 201 can provide more details.

ACADEMIC INTEGRITY
The Dean of Students’ office provides you with a link to a comprehensive index of important University policies and procedures (http://deanofstudents.arizona.edu/codeofacademicintegrity). Any violations will be reported to the Dean of Students’ Office. All student work must be properly attributed. Homework assignments, problem sets and lab reports are individual efforts unless otherwise stated. Work submitted under a given name must be original work from that student. Failure to properly attribute work is an academic integrity code violation. When working in lab collecting and analyzing data with other peers, students must indicate in their report which data is theirs and who provided any other results they present. Failure to attribute
laboratory results to the person responsible for collecting the data is an academic integrity violation. Likewise, group analyses must be so identified. Submission of any material that is substantially the same as some other written document (e.g. another report, a journal article, a textbook, a web page), and is not properly attributed, constitutes an academic integrity violation. Violations of scholastic ethics are considered serious offenses by The University of Arizona, the Chemistry and Biochemistry Department, and the instructors. Students may collaborate with peers on group activities, but their performance on individual assignments should be based on their own achievement. Any form of cheating or plagiarism will result in a failing grade for the item in question, and possibly other appropriate disciplinary actions, including failing the course.

CLASSROOM BEHAVIOR
Students will treat the instructor, TAs, and their fellow students with respect and uphold the Code of Conduct outlined in the website: http://deanofstudents.arizona.edu/studentcodeofconduct. The University seeks to promote a safe environment where students and employees may participate in the educational process without compromising their health, safety or welfare. The policies are outlined on the following website and will be enforced in this course: http://policy.web.arizona.edu/threatening-behavior-students. Students must adhere to all rules and regulations regarding safe laboratory practices as detailed in the lab manual, in the "Student Safety Agreement," and by the instructor. Failure to do so may be considered a code of conduct violation and can result in expulsion from lab.

MOBILE PHONES
Mobile phones are great devices for keeping in touch with other people, among other things; however, using them during class for something other than a class activity (texting, Facebook, etc.) shows a lack of respect and indicates that you are not actively participating in learning. Please refrain from such activities. Violation of this policy may result in a forfeit of the semester’s participation/attendance grade. During an exam, all mobile phones should be turned off and placed in your bag. If you have a mobile phone out during a test, it will automatically be considered an academic integrity violation and treated as such.

STUDENTS WITH DISABILITIES
It is the University’s goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact Disability Resources (520-621-3268) to establish reasonable accommodations. Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable. DRC contacts and instructions are given at the following website: http://drc.arizona.edu.

COPYRIGHT STATEMENT
My lectures and course materials, including power point presentations, tests, answer keys, worksheets, and similar materials, are protected by copyright. I am the exclusive owner of copyright in those materials I create. You may take notes and make copies of course materials for your own use. You may not and may not allow others to reproduce or distribute lecture notes and course materials publicly whether or not a fee is charged without my express written consent. Similarly, you own copyright in your original papers and exam essays. If I am interested in posting your answers or papers on the course web site, I will ask for your written permission.

Information contained in this course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.
### Important Dates:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wed 1/15</td>
<td>Classes begin</td>
<td></td>
</tr>
<tr>
<td>Mon 1/20</td>
<td>Martin Luther King, Jr. Day</td>
<td>No class or lab! ***</td>
</tr>
<tr>
<td>Tues 1/21</td>
<td>Labs begin</td>
<td></td>
</tr>
<tr>
<td>Tues 2/11</td>
<td>Last day to drop with no record</td>
<td>No signature required</td>
</tr>
<tr>
<td>Fri 2/7</td>
<td>EXAM 1</td>
<td>5 PM</td>
</tr>
<tr>
<td>Fri 3/7</td>
<td>EXAM 2</td>
<td>5 PM</td>
</tr>
<tr>
<td>Tues 3/11</td>
<td>Last day to drop with signature</td>
<td></td>
</tr>
<tr>
<td>3/15-3/23</td>
<td>Spring break</td>
<td>No class or lab! ***</td>
</tr>
<tr>
<td>Fri 4/11</td>
<td>EXAM 3</td>
<td>5 PM</td>
</tr>
<tr>
<td>Fri 5/2</td>
<td>EXAM 4</td>
<td>5 PM</td>
</tr>
<tr>
<td>Wed 5/7</td>
<td>Last day of classes</td>
<td></td>
</tr>
<tr>
<td>Mon 5/12</td>
<td>FINAL EXAM</td>
<td>6 PM</td>
</tr>
</tbody>
</table>

***See the lab syllabus for instructions to make up the lab.