Spring 2016
INSTRUCTOR: Cheryl Shimazu

I the undersigned, have received and read the Chemistry 112 Lecture and Laboratory Syllabus and Information

Signature: ___________________________________________

Printed Name: _________________________________________

Date: _______________________________
Syllabus - CHEMISTRY 112 - 12:30 T/TH LEC

Spring 2016

Course #: 20303

Instructor: Cheryl Shimazu

Office Hours: M 9:00-9:30 am  W 8:30-9:30 am  Th 9:30-11:00

Office: S-221 Office Phone: 562.860.2451 x 2694

E-Mail: cshimazu@cerritos.edu

Website: www.cerritos.edu/cshimazu

School Address: 11110 Alondra Blvd. Norwalk, CA 90650

Catalogue Course Description: This course is designed for science majors and is a continuation of CHEM 111. It includes oxidation-reduction; electrochemistry; modern atomic structure and bonding; molecular geometry; coordination chemistry; nuclear chemistry; thermodynamics; kinetics and organic chemistry. The laboratory includes qualitative analysis

Prerequisites: A grade of "C" or better in Chemistry 111, First Semester General Chemistry. No exceptions to these prerequisites will be allowed.

Recommendation: It is strongly recommended that the preceding prerequisite be completed within four years prior to the date of enrollment in CHEM 112

REQUIRED MATERIALS:

2. Scientific Calculator
3. Safety in the Chemistry Laboratory by Cerritos Chemistry Dept. (Online)
4. Safety goggles with splash protection in compliance with ANSI 287.1-1989 as required by California State Law (see laboratory ground rules)
5. Lab Coat/Apron (see laboratory ground rules)

LEARNING OUTCOMES:

1. Apply knowledge of microscopic (molecular) interactions to explain or predict macroscopic properties.
2. Apply critical thinking strategies in solving algorithmic and conceptual problems in chemistry. Incorporate chemical principles to explain lab results and vice versa.
3. Apply laboratory skills to perform chemical analysis including collection of data, computations, and statistical analysis of the results.
4. Use effective written communication of chemical information.
5. Make effective use of current technology to collect and analyze data

LECTURE OUTLINES AND WORKSHEETS:

1. Lecture outlines and worksheets are posted on my webpage: www.cerritos.edu/cshimazu. You need to print out the lecture outlines and worksheets and bring them to lecture with you.
2. All chapters assigned in the schedule are from the textbook, Chemistry: A Molecular Approach, TRO 3rd Ed.
HOMEWORK:

ONLINE HOMEWORK:
1. Online homework is required for this class. I will drop 2 online homework assignments. The 1st homework assignment will be dropped during the first 8 weeks and the 2nd will be dropped during the last 8 weeks of the semester. Late homework will not be accepted however you will still have access to the homework the entire semester for review and practice.
2. Buy the text with the online access code or go online and buy the online access code.
3. Access online homework at: www.masteringchem.com/

ANSWER KEYS TO ASSIGNED PROBLEMS FROM MY LECTURE OUTLINES:
Answer keys for problems assigned from my lecture outlines are found on my website. These problems will not be collected. It is your responsibility to do all problems assigned and check all set-ups and answers (See my website!). Similar problems will be found on exams.

END OF THE CHAPTER TEXTBOOK PROBLEMS:
See page 7 for assigned problems at the end of each chapter. Answers are in the back of the textbook. These problems will not be collected. Similar problems may be found on exams.

METHODS OF EVALUATION:
- Hour Exams: Four exams, each worth 100 points. The lowest exam score will be dropped. All exams will be closed book/closed notes. All books and papers must be out of sight. Complete setups must be given in order to receive credit. (i.e. no credit for answers alone.) No Make-up exams will be given.
- In Class Quizzes: In Class Quizzes are worth 20 pts. each. 2 Quizzes will be dropped. No Make-up quizzes will be given.
- Online homework: Online homework is required for this class. I will drop 2 online homework assignments during the course of the semester. Late online homework will not be accepted. (See above).
- Errors in grading: You have 1 week after the return of your exams or quizzes to see me to correct any grading errors.
- Worksheets: Worksheets and worksheet answer keys are found on my website. Worksheet problems will not be collected. It is your responsibility to do all problems assigned and check all set-ups and answers (See my website!). Similar problems will be found on exams.
- Final: The final will be worth 150 points.
- Laboratory: See lab handout
- Lecture Grade Distribution

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>300</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>150</td>
</tr>
<tr>
<td>Online Homework</td>
<td>75</td>
</tr>
</tbody>
</table>

- GRADING SCALE:

<table>
<thead>
<tr>
<th>PERCENTAGE</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 and above</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>59 and below</td>
<td>F</td>
</tr>
</tbody>
</table>

- COURSE GRADE DISTRIBUTION: LECTURE = 67% & LABORATORY = 33%
To achieve a "C" or greater for Chem. 111 you must obtain an overall grade of 70% and:
1. Pass the lecture portion
2. Pass the laboratory portion
3. Pass the lecture final

A Failing Score (With an "F"-59% and below) in Lecture, Laboratory or on the Lecture Final will result in a course grade no higher than a "D"
Withdrawals:
If you find it necessary to drop the course: DO NOT JUST STOP ATTENDING CLASS. Use "My Cerritos"
Friday, April 22, 2016 is the last day to withdraw, but a "W" will appear on your transcript.

Accessibility: It is the college's policy to provide, on an individual basis, reasonable accommodations to student who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to come to my office hour or talk to me after class to discuss your individual needs for accommodations. If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructors and the Disabled Student Programs and Services at (562) 860-2451 ext. 2335, as early as possible in the term.

First Week Attendance: You must attend both lecture and lab the first week of the semester on time. (1st and 2nd day of the semester) unless excused by the instructor. **If you have any unexcused absences during the first week, you will be dropped from the course.** It is your responsibility to contact the instructor to be excused.

Attendance/Performance: Past experience has shown that students must attend lecture to achieve a good course grade. It is your responsibility to regularly attend lecture and laboratory. You may be dropped if you if you to attend 3 class sessions. (One hour past two class sessions, actually)

Absence: Students are responsible for ALL work, announcements, handouts and material missed during an absence.

Assistance during an absence: Contact me by phone or e-mail so that I can keep you informed of class work including announcements of due dates of lab work, handouts, quiz/exam dates.

Laboratory: You must attend your assigned lab time. Make-up labs can be authorized by your lab instructor.

Cheating policy: See your Spring Cerritos College Schedule of Classes: Academic Honesty/Dishonesty Policy. Essentially, if you cheat, you will be dismissed from the course with an "F" grade.

Word to the Wise:
Come prepared. It is your responsibility to come to lecture, lab and exams with the proper material (paper, pencils, calculator, text, lab sheets...etc.) You need to keep up with the assignments daily: last minute cramming in chemistry does not work!
How to Join Another MasteringChemistry Spring 2016 Course

CHEM 112 - SHIMAZU

COURSE ID: CHEM112SPRING2016SHIMAZU

To join another MasteringChemistry® course, see which column below applies to you. You can be in up to four MasteringChemistry courses, whether at the same time or one after another.

If you CAN STILL LOG IN to a MasteringChemistry course

-AND-
Your next MasteringChemistry course uses the same textbook (including its edition) or the same resource, such as Virtual Lab, as the original course:

Follow the instructions below. You don’t need to register again (i.e., redeem an access code or buy access online).

Note: Your instructor controls the end date for each MasteringChemistry course. You can no longer log in to a course after its end date.

If you CANNOT LOG IN to a MasteringChemistry course anymore

-OR-
If your next MasteringChemistry course uses a different textbook or different resource, such as Virtual Lab, than your previous course:

Follow the instructions in the student guide for getting started (available from www.masteringchemistry.com > Tours & Training > Getting Started). You will need to redeem an access code or buy access online.

Tip: To help manage your Pearson resources, use the same Pearson user account (as identified by your Login Name and Password) for all of your Pearson products.

Join another MasteringChemistry course and open available self-study resources

1. Click My Courses in the upper left.
2. Choose Join Another Course
3. Enter the Course ID: CHEM112SPRING2016SHIMAZU and click Continue.
   - Don’t have the Course ID yet? Get this information from your instructor.
   - If the Course ID you entered applies to a different book or another resource for which you don’t have access yet: You will be asked to either redeem an access code or buy access online. Follow the on-screen instructions.

2. If asked, enter your Student ID according to the instructions provided and click Continue.
   - If you want to consult with your instructor first: You can add your Student ID later by clicking your name link in the upper right.

You should see the Course Home page of the additional course. From now on, logging in will take you to the Course Home page of the MasteringChemistry course you last worked in.

- To switch your view among MasteringChemistry courses: My Courses > Switch to a Different Course menu.
- To check out self-study resources: Click eText and/or Study Area, as available.

Support

Go to the Support area of www.masteringchemistry.com, where you will find:
- System Requirements
- Answers to Frequently Asked Questions
- Registration Tips & Tricks video
- Contact information for Support, including Live Chat
CHEM 112 - SHIMAZU
Student Registration for NEW Mastering Chemistry Students

In this course you will be using MasteringChemistry®, an online tutorial and homework program that accompanies your textbook. If you have joined a MasteringChemistry course before and can still log in:

Save time by following the guide for joining another course found under the STUDENT heading at www.masteringchemistry.com > Tours & Training> Getting Started instead of using the steps below.

What You Need:

✓ A valid email address
✓ A student access code
   (Comes in the Student Access Code Card/Kit that may have been packaged with your new textbook or that may be available separately in your school’s bookstore. Otherwise, you can purchase access online at www.masteringchemistry.com.)
✓ The ZIP or other postal code for your school: 90650
✓ A Course ID: CHEM112SPRING2016SHIMAZU (Provided by your instructor.)

1. Register
   ● Go to www.masteringchemistry.com and click Students under Register.
   ● To register using the student access code inside the MasteringChemistry Student Access Code Card/Kit, select Yes, I have an access code. Click Continue.
   –OR– Purchase access online: Select No, I need to purchase access online now. Select your textbook, whether you want access to the eText, and click Continue. Follow the on-screen instructions to purchase access using a credit card. The purchase path includes registration, but the process is a bit different from the steps printed here.
   ● License Agreement and Privacy Policy: Click I Accept to indicate that you have read and agree to the license agreement and privacy policy.
   ● Select the appropriate option under “Do you have a Pearson Education account?” Continue to give the requested information until you complete the process. The Confirmation & Summary page confirms your registration. This information will also be emailed to you for your records. You can either click Log In Now or return to www.masteringchemistry.com later.

2. Log In
   ● Go to www.masteringchemistry.com.
   ● Enter your Login Name and Password that you specified during registration and click Log In.

3. Join Your Instructor's Online Course and/or Open Self-Study Resources
   Upon first login, you'll be asked to do one or more of the following:
   ● Join a Course by entering the MasteringChemistry Course ID provided by your instructor. If you don't have a Course ID now, you can return to join the MasteringChemistry course later. When you join a course, you may also be asked for a Student ID (follow on-screen instructions).
   ● Explore the Study Area or Launch Your eText, if these resources are available for your textbook.

To Access MasteringChemistry Again Later
Simply go to www.masteringchemistry.com, enter your Login Name and Password, and click Log In.

After you have joined a course: You can open any assignments from the Assignments Due Soon area or from the Assignments page. For self-study, click eText or Study Area, if these options are available.

Support
Access Customer Support at http://www.masteringchemistry.com/support, where you will find:
   ● System Requirements
   ● Answers to Frequently Asked Questions
   ● Registration Tips & Tricks video
   ● Additional contact information for Customer Support, including Live Chat
Chemistry 112, Spring 2016 Tentative Lecture Schedule and Assigned Problems

Answers to the text’s problems are in the back of the text. Additional problems will also be handed out in lecture. Answer keys are available. These problems are assigned but not collected. It is your responsibility to work these problems; similar types of problems will be on quizzes and examinations.

<table>
<thead>
<tr>
<th>Week of</th>
<th>TOPIC</th>
<th>CHAPTER READING</th>
<th>PAGES</th>
<th>TEXTBOOK ASSIGNED PROBLEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Free Energy &amp; Thermodynamics</td>
<td>Chap 17</td>
<td>812-823,</td>
<td>Chap 17: 31,47,57,63,69,71,</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>829-842,</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>845-847</td>
<td></td>
</tr>
<tr>
<td>Jan. 19</td>
<td>Oxidation Number and Redox Equations</td>
<td>Chap 4:9</td>
<td>175-181</td>
<td>91,93,95</td>
</tr>
<tr>
<td>Jan. 21</td>
<td>Electrochemistry</td>
<td>Chap. 18</td>
<td>860-901</td>
<td>39,41,43,49,51,53,55,57,61,63,65,67,69,75,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>77,79,81,99,101,109</td>
</tr>
<tr>
<td>Feb. 9</td>
<td>The Quantum-Mechanical Model of the Atom</td>
<td>Chap 7</td>
<td>294-326</td>
<td>41,51,57,59,61,65,69,71</td>
</tr>
</tbody>
</table>

**EXAM I MATERIAL**

**EXAM II MATERIAL**

|           | Resonance Structures and bond Energies     | Chap 9.8-9.10   | 348-390        |                             |
| March 3   | Chemical Bonding: Molecular Shapes, Valence Bond Theory, and Molecular Orbital Theory | Chap 10         | 424-471        | 35,39,41,45,61,63,65,71,75,77,79,81,83,85,91 |

**EXAM III MATERIAL**

| March 24  | Transitional metals and Coordination Compounds | Chap 24         | 1098-1122      | 21,23,25,29,31,33,37,39,41,43,45,47,49,51,65,67 |
| April 7   | Complex Ion Equilibrium                      | Chap 16.8       | 795-799        | 109,110,111,112,146,147       |

**EXAM IV MATERIAL**

| April 14  | Chemical Kinetics                           | Chap 13         | 596-629        | 39,41,43,45,47,49,51,53,54,55,57,59,61,63,65,73,75,76,81,93,94,104,105,107 |
| April 21  | Organic Chemistry                           | Chap 20         | 950-987        | 37,39,43,45,49,53,55,57,59,61,63,73,77,81 See Organic handouts |
| May 5     | Radioactivity and Nuclear Chemistry         | Chap 19         | 910-930        | 31,35,41,45,47,49,51,53,55,57,59,61 |

**May**

* FINAL EXAM

**Final Exam** You must pass lecture, lab and lecture final and obtain a 70% overall to obtain a grade of a “C” or higher (in other words if you fail lecture or lab or the lecture final (54% or below, your highest grade will be a “D”)

1/4/2016
CHEMISTRY 112 LAB SCHEDULE  
Spring 2016

**STUDENTS MUST BUY:**
1. Goggles
2. Laboratory Safety by Chemistry Department (Online)
3. Student Lab Notebook, Hayden-McNeil Specially Products
4. Lab Apron

**REPORTS:**
Reports are due at the beginning of the quiz session. 10% of the points is subtracted for a report turned-in after quiz section has started. An additional 10% is subtracted for each day the report is late.

<table>
<thead>
<tr>
<th>DATE</th>
<th>Periods for Experiment</th>
<th>Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 12</td>
<td>1</td>
<td>1. Check into Lab</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Safety</td>
</tr>
<tr>
<td>Jan. 14</td>
<td>1</td>
<td>1. Safety Quizzes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Calorimetry</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> Notebook is required</td>
</tr>
<tr>
<td>Jan. 21</td>
<td>1</td>
<td>Lab Separate - Balancing Redox Equations</td>
</tr>
<tr>
<td>Jan. 26-29</td>
<td>2</td>
<td>Oxidation - Reduction Experiment</td>
</tr>
<tr>
<td>Feb. 2-11</td>
<td>2</td>
<td>Preliminary Experiment on Cation Group Separations</td>
</tr>
<tr>
<td>Feb. 16-18</td>
<td>2</td>
<td>Cation Group III Part A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preliminary Test</td>
</tr>
<tr>
<td>March 3-22</td>
<td>4</td>
<td>Cation Group III Part B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Known</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Unknown</td>
</tr>
<tr>
<td>March 31- April 5†</td>
<td>2</td>
<td>Preparation and Analysis of an Iron Coordination Compound</td>
</tr>
<tr>
<td>April 7-12‡</td>
<td>3</td>
<td>Preparation and Analysis of an Iron Coordination Compound</td>
</tr>
<tr>
<td>April 19-26</td>
<td>2</td>
<td>Spectrophotometric Determination of an Equilibrium Constant</td>
</tr>
<tr>
<td>April 28- May 5</td>
<td>2</td>
<td>Temperature and Concentration Effects on Reaction Rates</td>
</tr>
<tr>
<td>May 10-12</td>
<td></td>
<td>Locker Clean-up</td>
</tr>
</tbody>
</table>

† Tentative experiment dates due to lecture schedule

*All work must be turned in by the Thursday of the last week of instruction. Late work after Thursday will not be accepted

**Failure to check out of your locker by the end of the semester may result in your records being placed on administrative hold
Chemistry 112 Laboratory Ground Rules

**LAB GRADE**

\[
\text{Laboratory } \% \text{ overall} = \frac{2(\% \text{ Laboratory quizzes}) + \% \text{ Laboratory Reports}}{3}
\]

(The Laboratory quizzes are worth 66.7 % of your grade and your Laboratory reports are worth 33.3 % of your grade.)

The lecture is worth 65% of your overall Chemistry 112 grade. The laboratory is worth 35% of your overall Chemistry 112 grade. **Overall Chem. 112 Course % = 0.65 (Lecture %) + 0.35 (Lab %)**

If you fail to successfully complete more than two experiments (Both the experimental and write-up portions), your course grade will be no higher than a D.

**REQUIRED MATERIALS**

1. Laboratory Safety, Cerritos Chemistry Department (Online)
2. Safety goggles in compliance with ANSI Z87.1-1989 which provide splash protection as required by California State Law. THESE ARE TO BE WORN AT ALL TIMES IN LAB.
3. Lab Apron
4. Student Lab Notebook, Hayden-McNeil Specially Products

**SAFETY QUIZ**

Each student in the Chem. 112 lab must thoroughly read and understand the material presented in the required Safety Manual by the Chemistry department. The Safety quiz will be given in the second day of lab during the quiz section. **You will need to bring a Scantron 882 to take the safety quiz. You must score 90% on the safety quiz.** If you do not receive a satisfactory score, you will be allowed to retake each quiz once. If you do not get a satisfactory score after retaking a quiz, you will receive an F grade for the lab portion of the course. If you choose not to drop the class and remain, knowing that the lab grade and the course grade will be an F, you will not be allowed to do any experiments. All safety procedures specified in the packet, Safety in the Chemistry Laboratory, must be followed at all times in the laboratory. Failure to work safely in accordance with those as well as any other safety procedures presented to you in the safety video, in written experiment instructions, or verbal instructions from your lab instructor, can result in your being removed from the lab. Failure to wear safety goggles can result in your being removed from the lab.

**EXPERIMENTS**

Experiments are done on the dates shown on the lab schedule and are to be performed alone unless otherwise specified in the Chem. 112 lab manual or by the instructor. All reports will be done in either black or blue ink. All observations and data are recorded directly into the laboratory notebook. Failure to do so could result in a “zero” for the experiment. Your lab instructor must initial each page in your lab book before you leave the lab. **NO CREDIT WILL BE GIVEN WITHOUT THE INITIALS.** Late reports will be accepted no more than two lab periods late and are discounted 10% per each lab period. All work must be turned in by the Thursday before final exam week. Late work will no longer be accepted at the start of the final exam week.

**LAB QUIZZES**

A lab quiz for each experiment will be given on the day the lab report is due. THERE ARE NO MAKEUP QUIZZES. You are expected to take the quiz regardless of whether or not you have completed the experiment.

**LOCKER RESPONSIBILITY**

Each Chem. 112 student will be assigned a locker and its master lock combination. Once a locker is assigned, the master lock combination and locker contents become the responsibility of the student. You will be charged for any broken glassware or equipment.

**COMMUNITY DRAWER RESPONSIBILITY**

The community locker/drawer contains items of equipment that are not found in a student’s assigned locker. These items are shared among Chem. 112 students with lockers in the same vicinity. You may use these items during a lab, but they must be returned to the community locker/drawer before you leave the laboratory. If any of these items are found in your assigned drawer, the item will be removed and you will be fined.

**DROPPING THE LAB**

You must check in your locker to officially drop the Chem. 112 class. This involves checking into your locker during your regularly scheduled lab period. If this is not possible, the stockroom will check you in for a fee by making an appointment with them at (562) 860-2451 extension 2695. An administrative hold will be placed on your records if you fail to check-in and pay any debt owed to the stockroom by Thursday of final exam week.