Chemistry 2046-L: College Chemistry laboratory

Ybor Campus, Summer, 2016 Section 83441

Instructor: Dr. Bert Rubini
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Meeting Time: Tuesdays / Thursdays 10:30 to 12:40 PM, Room YBOR 202
Textbook: Chemical Principles in the Laboratory by Slowinski, Wolsey and Masterton, 11th Edition

Grading:
- Average on Experiments: 75%
- Quiz Average: 5%
- Attendance: 5%
- Final Exam: 15%

100%

Your lab reports are divided into two parts: a pre-lab ("advance study assignment") to be completed before coming to class, and an in-class report containing data, results, and calculations. Your pre-lab is due at the beginning of lab. Late pre-labs will NOT be accepted. Most of your lab report will consist of pages torn out of your lab manual, but you should bring notebook paper to class for quizzes.

Attendance is worth up to 5 points per day. If you arrive by 10:40 AM, you will receive 5 points for the day. Students arriving between 10:40 and 10:50 AM will receive 2 points out of 5. Students arriving after 10:50 AM will receive a zero for attendance that day. If you have not arrived at lab by 11:00 AM, you are considered to have missed the lab and will receive a zero on that experiment.

On the back of this page is the lab schedule; note that the experiments are not performed in the same order in which they appear in the manual. IF YOU PREPARE FOR THE WRONG LAB, YOU WILL NOT RECEIVE CREDIT FOR PRE-LAB OR EXPERIMENTAL ERRORS WHICH MAY RESULT! This includes students who have the wrong edition of the lab manual... we use the 11th Ed.

Grading Scale: Dr. Rubini’s Office Hours for Summer 2016
- 90-100% A
- 80-89% B
- 70-79% C
- 60-69% D
- < 60% F

by appointment.

Important note: Please note that this lab course is a co-requisite with the lecture; if you drop the lecture, you will ALSO BE DROPPED FROM LAB!
Below is a schedule of experiments for the lab; please note that we do meet twice every week! If there is not an experiment scheduled for a particular day, you do NOT have to come to lab that day!

<table>
<thead>
<tr>
<th>Date</th>
<th>Experiment</th>
<th>Report Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/24 (Tues)</td>
<td>Introduction / Lab Safety</td>
<td>none</td>
</tr>
<tr>
<td>5/31 (Tues)</td>
<td><strong>Download</strong>: Absorbance Spectrophotometry (part 1)</td>
<td>none</td>
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<tr>
<td>6/2 (Thurs)</td>
<td><strong>Download</strong>: Absorbance Spectrophotometry (part 2)</td>
<td>none</td>
</tr>
<tr>
<td>6/7 (Tues)</td>
<td><strong>Download</strong>: Molar Mass by Freezing Point Depression</td>
<td>none</td>
</tr>
<tr>
<td>6/14 (Tues)</td>
<td>Expt. #20: Iodination of Acetone; Parts A, B and C only.</td>
<td>Abs and F.P.</td>
</tr>
<tr>
<td>6/16 (Thurs)</td>
<td>Expt. #21: A Clock Reaction; Part A only.</td>
<td>none</td>
</tr>
<tr>
<td>6/21 (Tues)</td>
<td>Expt. #22: LeChatlier's Principle</td>
<td>#20</td>
</tr>
<tr>
<td>6/28 (Tues)</td>
<td>Expt. #23: Determination of an Equilib. Constant; Part A only.</td>
<td>#21 and #22</td>
</tr>
<tr>
<td>6/30 (Thurs)</td>
<td><strong>Download</strong>: Advance study AND data page for expt. #23!</td>
<td></td>
</tr>
<tr>
<td>7/5 (Tues)</td>
<td>Expt. #25: pH - Buffers and their Properties; Part B and C only.</td>
<td>#23</td>
</tr>
<tr>
<td>7/12 (Tues)</td>
<td>Expt. #31: Equivalent Mass by Electrolysis</td>
<td>#26 and #25</td>
</tr>
<tr>
<td>7/14 (Thurs)</td>
<td>To Be Announced</td>
<td></td>
</tr>
<tr>
<td>7/19 (Tues)</td>
<td><strong>LAB FINAL EXAM</strong> (Coverage to be announced)</td>
<td>#31</td>
</tr>
</tbody>
</table>

*Please note that two of the experiments (“Absorbance Spectroscopy” and “Molar Mass by Freezing Point Depression”) are not in your lab manual, but must be downloaded from Dr. Rubini’s website. There are also some supplemental documents to download for Experiments #23 and #26. You can access these files by going to www.hccfl.edu, clicking on the “HCC Directory” link at the very top of the page, toward the right side. Type in my name (“Rubini”) from the directory page and you will see my contact information as well as a link to my web site. There is a link to lab handouts at the top of my web site. The documents can also be accessed through the Canvas page for this course. Or, if you wish, you can go to the site directly, the address is:

http://content.hccfl.edu/faculty/bertrubini/home.htm

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Below are the course objectives for CHM 2046-L, as approved by Hillsborough Community College:

At the end of this course, the student will be able …

1. To understand the safety rules in the chemistry laboratory; to properly and safely handle chemicals and chemical equipment

2. To identify and use common equipment and measuring devices in the chemistry laboratory; to report experimental data with precision appropriate to the measuring devices used.

3. The student will perform experiments which enhance their understanding of…
   a. Colligative properties of solutions
   b. Rate Laws
   c. Equilibrium Constants
   d. LeChatlier’s Principle
   e. pH values for solutions, and their relationship to acid/base equilibria
   f. the construction and analysis of electrochemical cells
Laboratory Policies / Lab Report Format
Chemistry 2046-L

"Language most shews a man; Speak, that I may see thee."
-- Ben Johnson, 1572 - 1637

Your lab reports are a very significant part of your grade in this course - 75% of your grade. So it is important to write all your lab reports in a manner consistent with the format described below.

BEFORE COMING TO LAB:

1. Refer to the class schedule to ensure that you are preparing for the correct experiment. We do not perform the experiments in the order that they appear in the lab manual; also the experiments may have different numbers if you are using an older edition of the manual. YOUR ARE RESPONSIBLE FOR PREPARING FOR THE CORRECT LAB even if you are using a different edition of the book! Thoroughly read the experimental discussion and procedure.

2. Complete the ADVANCE STUDY ASSIGNMENT for the experiment. This assignment is due at the beginning of the class, BEFORE you begin the experiment. Late advance study assignments are not accepted. This includes students who did the wrong advanced study because they are using the wrong (or outdated) lab manual. To receive full credit, you MUST show work for the advance study problems - answers without calculations will be counted wrong! Advance Study assignments are normally NOT returned with the lab, although you can view your graded advance study assignment or look at the key upon request. Please use the Advanced Study page(s) directly from your textbook; hand-copied Advanced Study assignments are not acceptable.

DURING THE LAB CLASS:

1. Turn in your Advance Study when arriving in the lab. LATE ADVANCE STUDY ASSIGNMENTS WILL NOT BE ACCEPTED. Advance Study assignments are typically worth 20 - 30 points, and sometimes more; you will receive a zero on this portion if the assignment is not submitted at the beginning of class. This includes leaving it at home, leaving in your car, problems with the website, computer or printer, dog eating it, etc. "I didn’t understand how to do it" is NOT an acceptable excuse! If you don’t know how to do the calculations, you need to figure it out BEFORE the due date.

2. Be prepared for a brief (~10 minute) quiz on the experiment to be performed. Please remember that if you are late for lab FOR ANY REASON, you will not be permitted to take the quiz. This includes car trouble, alarm clock problems, getting stuck in traffic, as well as any other reason you can think of. You must be present WHEN THE QUIZ IS PASSED OUT or you get a zero. Even if you are only 30 seconds late.

3. Your instructor will provide a pre-lab discussion which includes any changes or modifications in the lab procedure, special safety instructions, and tips which may make your experiment run more smoothly.

4. Make certain you have proper lab attire! Short pants or short skirts ARE NOT PERMITTED IN LAB! If you show up with improper lab attire, you will have to leave the lab and will be given an
unexcused absence from the experiment. You will be penalized one point from your experiment for
each time the instructor reminds you to wear your goggles.

Generally, we do **NOT** work in groups or pairs. Everyone should do their own experiment
unless otherwise indicated by your instructor.

Begin the experiment, recording all data in INK in your LAB MANUAL on the report sheet.
**Hand-written data pages are not acceptable under any circumstances.** Do not use pencil. If you make
a mistake, draw a line through the erroneous data and write in the correction above it.

Do not write data on a separate sheet of paper. Scrap paper is not acceptable for the
recording of measurements or data, and will be confiscated if used. **REMEMBER TO RECORD THE**
**UNITS OF ALL MEASUREMENTS.** **REMEMBER TO RECORD YOUR UNKNOWN NUMBER (if**
**appropriate).**

**AFTER THE EXPERIMENT IS COMPLETED:**

1. Perform any calculations required to complete the “Data and Calculations” section of your
report sheet. All calculations must be shown clearly, including the numerical set-up. **USE A**
**SEPARATE SHEET OF PAPER FOR YOUR CALCULATIONS.** Calculations entered directly on the
data sheet will be ignored (no credit given). Be careful of significant digits. It is not necessary to
show simple subtractions (e.g., subtracting the mass of the container to determine the mass of a
sample). Only show calculations that involve conversions or use of formulae.

2. The due dates for all lab reports is given on the lab schedule above. At the beginning of the
lab period when the experiment is due, submit your completed lab report, including DATA SHEET and
CALCULATIONS PAGE. The report will be considered lab if it is not complete at the beginning of lab
period.

**Policy for Late Papers / Due Dates:**

- **Late Advance studies assignments ARE NOT ACCEPTED** for any reason.
- Lab reports will have 10 points deducted if turned in late during the lab period (or later during
the day they are due), plus an additional 10 points per calendar day, including weekends. This
deduction applies for a paper which is late FOR ANY REASON, including leaving it in your car,
getting stuck in traffic, leaving it at home, alien invasion, dog ate it, etc.
- Incomplete lab reports will not be accepted. For instance, if you have your data page, but haven’t
finished you calculation page on time, you will have to wait and finish the entire report before you
turn it in; the report will still be considered late.
- You will always have at least 5 days to complete a lab report; (if you perform an experiment on
Tuesday, it will **NOT** be due Thursday of the same week. Labs are never due the same week that
they are performed). Experiments which are performed on TUESDAY are due on the first meeting
of the FOLLOWING WEEK; experiments which are performed on THURSDAY are also due the first
meeting of the FOLLOWING WEEK.