Chemistry 102

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Location
All lab sections in Pastore undergraduate labs
Section time and dates in ecampus

Course Description
Chemistry 102 is the laboratory course that accompanies the Chemistry 101 lecture. Use of a scientific calculator is required and either credit for chemistry 101 or concurrent enrollment in Chemistry 101 is a prerequisite to this lab course. Specific information regarding the course is given in the following pages.

You will be expected to write a detailed lab report for each experiment. Plan to spend at least 3 hours per week on the experimental write-up. The work is done individually, so do not plan on collaborating with a lab partner to shorten the time spent on the experimental write-up.

First week of classes
All students must attend the first laboratory session to complete the required paperwork. If you miss this lab, you must contact Dr. Geldart before Friday of the first day of classes to get information regarding a laboratory makeup. No laboratory makeups will be given after Friday of the first week of classes and you will be dropped from the lab. We have a long waitlist of students trying to get into the course, so if you do not show up, we conclude that you are not interested in the course and will give your place to someone on the waitlist.

Experiments

<table>
<thead>
<tr>
<th>Week</th>
<th>Experiment #</th>
<th>Material Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mandatory check-in</td>
<td>Safety and Regulations (If you do not attend you will be dropped)</td>
</tr>
<tr>
<td>2</td>
<td>Experiment 1</td>
<td>Density</td>
</tr>
<tr>
<td>3</td>
<td>Experiment 2</td>
<td>Chromatography</td>
</tr>
<tr>
<td>4</td>
<td>Experiment 3</td>
<td>Zinc Stoichiometry</td>
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<tr>
<td>5</td>
<td>Experiment 4</td>
<td>Redox</td>
</tr>
<tr>
<td>6</td>
<td>Experiment 5</td>
<td>Acid/Base Titration</td>
</tr>
<tr>
<td>7</td>
<td>Experiment 6</td>
<td>Gas Laws</td>
</tr>
<tr>
<td>8</td>
<td>Experiment 7</td>
<td>Calorimetry</td>
</tr>
<tr>
<td>9</td>
<td>Experiment 8</td>
<td>Absorption and Emission</td>
</tr>
<tr>
<td>10</td>
<td>Experiment 9</td>
<td>Colligative Properties</td>
</tr>
<tr>
<td>11</td>
<td>Experiment 10</td>
<td>Molecular Models</td>
</tr>
<tr>
<td>12</td>
<td>Makeups</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Final</td>
<td>Lab Practical</td>
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</tbody>
</table>
Course Policies

Required Materials

Safety Equipment
You need to have safety glasses, a lab coat, nitrile gloves and shoes that completely enclose your feet for each experiment. If you do not have the proper safety equipment or are wearing improper footwear, you will be asked to leave the lab and may not return until properly dressed. Please put on your lab coat and safety glasses in the hallway as you are expected to be wearing them when you walk in the door of the lab. You may wait to put on your gloves until after the quiz.

Lab Manual
You must bring this lab manual to each class since it has your medical information form, quizzes and data sheets inside. If you forget to bring your lab manual, 10 points will be deducted from your lab report data and you will miss your quiz.

Calculator and Black Pen
You will need a calculator and a black pen for the lab for recording data, and taking the quiz. You will not be allowed to share a calculator during the quiz, so be sure to bring your own. You cannot use a cell phone as a calculator.

Teaching Assistants

TA Contact Information
Each TA is assigned an email address specific to the chemistry department. Your TA’s email can be found on the course website (www.chm.uri.edu) under the “For current students” tab at the top of the page. Email is the best way to contact your TA. Your TA should respond back within 24 hours to any email sent between 5pm on Sunday through 8am on Friday. TAs are not required to respond to any emails on weekends. If your TA does not respond within 24 hours of sending your email, please email Dr. Geldart immediately so your concerns will be addressed as soon as possible.

TA Duties during Lab
Your TA is expected to administer a quiz each week at the start of class. The quiz is used to test that you have a general understanding of the material before you do the experiment. Therefore, no questions can be answered immediately before the quiz is given. Questions regarding the material for the experiment should be addressed earlier in the week, well before the start of the lab, so do not expect your TA to answer questions the day of experiment until after the quiz has been collected. During the course of the experiment, the TA is available to help you set up equipment and answer questions pertaining to the current experiment. The TA cannot review any graded work while any experiments are going on, so if you have questions regarding anything but the current experiment, please email the TA later to set up a time outside lab to discuss your concerns.

TA Help Office
All teaching assistants in our department are required to staff our Help Office (Rm 215). The schedule will be posted on the door and will be posted on Sakai as soon as it is available. If you need help with a lab report, quiz material or the material in the lecture associated with your lab, you can see any TA teaching your course in the help office, room 215. Help office hours are posted on the door to the Help office and on the course website. Do not wait to do your lab report until the night before it is due. Not being able to contact your TA the night before the lab report is due is not an acceptable reason for not passing in the report. Get help in the help office well before you need to hand in your lab report. Ideally you should see your own TA, especially if you have a question regarding something specific to your lab section or grading.
Written work

Grading

The teaching assistant assigned to your section does all of the grading for the course. Contact your TA immediately if you have a problem with the grading of your work. If the problem does not get resolved through your TA, contact Dr. Geldart immediately. **No changes in grades will be made if the problem is not addressed within 1 week of receiving your graded material back from your TA.**

Do not compare the grading on your lab reports and quizzes to that of a student with a different TA. All teaching assistants grade slightly differently. At the end of the semester, the course supervisor evaluates the grades of each TA and will assign a scale (if necessary) to each section to assure that the overall grades of the teaching assistants will be similar. Therefore, a strict TA with lower grades overall will have a more generous scale than a TA that is more lenient. For example, one student that receives a B+ in the course may have an 87 average with a lenient TA and a student with a different TA may still get a B+ but may only need an 80 average instead.

**All work handed in during lab is to be graded and returned to you at your next lab session.** If you have not received your graded work promptly, please notify the course supervisor immediately so that your graded work is returned to you by the next lab.

Late Lab Reports

A full write-up of each week’s experiment is due at the start of the next class period. One lab report will be accepted 1 week late, but there is a **20 point penalty for passing in this late lab.** All other lab reports must be passed in before you perform the next experiment or you will receive a zero for the lab report. There are no exceptions to this rule. Do not wait until the night before your lab session to print your report. We do not have printing capability for non-chemistry majors in the department. You also cannot email a report into your TA, so be sure to get the entire report finished at least 24 hours before your lab session. **A grade of zero on three or more lab reports during the semester will automatically result in failing the course even if you performed all of the experiments, so you are better off passing in what you have than not passing in anything at all!**

Makeup Labs

Your semester grade will be based on completing and writing up all 10 laboratory experiments. None of these reports will be dropped. Ideally you will be able to attend all your labs, but if there is an emergency, a limited number of makeup labs will be offered near the end of the semester. If you miss a lab, the report due the day you are absent should be passed in at the next class with no penalty. The quiz for the first missed lab will be dropped. **You are only allowed to make up ONE lab experiment without prior authorization from the course director.** If you do miss more than one lab, you need to contact Dr. Geldart immediately about being allowed to do a second makeup lab. You will not be allowed to make up the second missed quiz and will receive a zero on that quiz. You cannot use the makeup lab session to redo an experiment you have already performed and either failed to pass in the report or got a low grade. **Makeup sessions are ONLY for students that missed the experiment the week they were scheduled to perform it.**

**Makeup Procedure:**

1. Sign up for the makeup lab in the stockroom. The dates for doing makeup labs and turning in make-up lab reports are given in the schedule of experiments. Note the date and time you select as you will **NOT** be notified when it is time for the makeup. **If you miss the makeup, you will receive a zero for the experiment regardless of the reason, so you may want to sign up for an early session.**

2. Makeup labs will be held in rooms 151 and 165 and 160. On the day of your makeup, go to the hallway and wait for instructions as to where your lab makeup will be held. You will be doing the specific lab that you missed, so bring your lab manual and be prepared to do the experiment on your own. You will not be given a quiz on the lab. This is the quiz that will be dropped.

3. Makeup lab reports must be turned into the TA in room 215 between 8am and 2pm on the dates listed in the syllabus. Note that this is usually either the day after the lab is performed. If you do a makeup lab on Friday, your lab report is due on Monday. No lab reports will be accepted after the 2pm deadline.
Grading and Point Distribution

Grading for Lab:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prelab quizzes</td>
<td>20</td>
<td>25%</td>
</tr>
<tr>
<td>Lab report</td>
<td>100</td>
<td>50%</td>
</tr>
<tr>
<td>Final exam</td>
<td>200</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
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Pre-lab Quizzes

There is a pre-lab quiz required before every experiment. The purpose of the quizzes is to be sure that you have read the lab thoroughly, understand the general concepts behind the lab, know the safety precautions that should be followed and be able to perform the calculations given in the experiment. If you have any questions on any of the material in the experiment, see a TA in the help office before your lab. Your TA cannot review any material before the quiz is given so you must be prepared to take the quiz as soon as you enter the lab.

Lab Reports

Grading on the lab report is given in the rubric later in the guide, but here are some points to note.

1. **It is important to do your own work.** In general, you will be working alone, so if you are found using another student’s data or your calculations, conclusions or answers to your discussion questions are too similar to those of another student, you will be given a zero for that lab. Points are deducted if your data sheet is missing or not signed by your TA. You will receive a zero for the lab if the data used in your calculations, results or conclusions do not match the data on your original data sheet. YOU MUST COLLECT AND ANALYZE YOUR OWN DATA!

2. **A lab technique grade will be incorporated into every report.** If any unsafe or unprofessional behavior is observed by your TA, chemistry faculty or a member of the stockroom staff, lab technique points will be deducted from your grade. In addition, if your lab space or lab equipment is not completely clean and ready for the next person to use, you will lose lab technique points.

3. **Lab reports must be handed in on time.** Your lab report must be typed, including the tables. The only portions of the lab reports that are to be handwritten are the original data sheet and the sample calculations. Do not wait until the night before your lab to do your lab report. Emailed reports are not allowed. You must give your TA a hardcopy of your lab report when you come to the lab. You are allowed to pass in 1 lab up to 1 week late with a 20 point penalty. A second late lab report will not be accepted and you will receive a zero for the experiment.

4. **All work handed in during lab is to be graded and returned to you at your next lab session.** If you have not received your graded work promptly, please notify the course supervisor immediately so that the graded work is returned by the next lab. If you have a concern about any of your graded work, you must contact your TA within 1 week of receiving the graded work to review the grading. **No grade changes will be allowed once you have had your graded material back for a week.**

Lab Practical

The lab practical involves a series of stations that require you to answer questions about lab equipment, demonstrate techniques learned in the lab and may also include remembering your observations from the experiments. In addition, there will be some written questions where you will need to perform calculations similar to those done in your lab reports and quizzes. You will need your lab coat, gloves and safety glasses as well as a calculator and a #2 pencil. The date of your lab practical is given in the schedule of experiments. If you miss your scheduled lab practical, the makeup for it is a written exam and the time needs to be arranged through your TA.
There is a lab report template located on the course website that must be used when writing the lab reports. You can also access it through Sakai. You are expected to download the template and follow the instructions for each lab report. The word template is designed to let you delete the text that explains each section and to insert your own wording, thus maintaining the general format of the report. If you cannot download the word file, a pdf file containing the same template is also given. Hand-written reports will not be accepted.

At the end of the template is a grading checklist that must be included as the last page of each lab report. Review both the checklist and the template before writing your lab report and then after the lab report is written, check to see that you have included all elements that are listed. The breakdown of the grading of each lab report is shown on the grading rubric. A description of what is required for each section is given under the heading of each section of the template. The template is designed so you can download it in word and then fill in your own material. Do not use a template from a previous semester. They often will have changes. You will not receive any credit for a report that has been written using an earlier edition of the template.

Note that there are a series of deductions that can be applied to every lab report, but also will be partially based on your behavior in the lab. These deductions are taken off after the lab report is graded based on the elements given in the checklist. The final 20 point deduction listed as “Other” is for infractions that do not fit the previous criteria, but are serious enough to warrant a lower grade. Be sure to include a copy of this checklist in every lab report to avoid a 10 point deduction on the lab. The template is designed to print out with this checklist, so just be sure that it is stapled to your report before you pass it in.

Your TA must follow this checklist when grading your lab report. A written explanation or a check mark on the checklist must be present for any deduction taken on the report. If you have any questions on the grading of your lab report, you must contact your TA immediately to get it explained. Your TA should be able to tell you exactly why each point was deducted. If after talking to your TA you still have questions, then see the faculty member in charge of the course. Any problems must be brought to the attention of the faculty member within 1 week of receiving the graded lab report or no changes of the grade will be recorded.

There can be up to 25 different TAs teaching the same course, so there will always be variation between TAs in the grading. Do not compare your graded material to that of a student with a different TA. As long as a TAs grades consistently across the sections and following the checklist, no changes will be made to individual grades based on the severity of a TAs grading. At the end of the semester, the course supervisor will review all of the grades and allows TAs that grade more severely to add a scale to their grades so that fair grades are achieved across the course.