Quantitative Analysis Laboratory ACHM 321L

Fall 2008, 1 credit hours                               Dr. C. L. Leverette  
Department of Chemistry and Physics                       SBDG 305, 803-641-3291 
University of South Carolina Aiken                      ChadL@usca.edu

Lab: T 1:40 PM—4:20 PM, SBDG 316

Office Hours: T 9:30-11:00 AM and WF 8:15 AM—9:00 AM and by appointment.*

*Please feel free to call or e-mail me when needed. In addition, my appointment schedule is very flexible. Therefore, if the office hours stated above do not fit into your schedule, we can set up a time that is convenient for you.

Corequisite: ACHM 321

Text and required materials:

The labs will be provided in the Monday lecture prior to each Tuesday lab period.
Scientific calculator (capable of log, scientific notation, square root, nth root, and exponents)
Safety Goggles (supplied by the Department)

Required dress and conduct:

- No shorts
- Closed top shoes (absolutely no sandals or flip-flops)
- Must always wear safety goggles when in the lab.
- Long hair should be pulled back completely away from the face.
- Turn off cell phones while in lab. (unless the instructor has granted special permission.)
- No food or drink allowed in the lab.

Failure to adhere to these or any other safety measures could lead to dismissal from the lab. You will not be able to make up the lab and you will receive a 0 for that lab. These rules are for your safety and the safety of your classmates.

If you come to lab without the proper dress, you will be asked to leave until you change your clothes and/or shoes.

In the event of an emergency, the appropriate emergency service and a faculty member must be notified immediately. I plan to be in lab with you at all times.

Emergency   x611
Dr. Leverette  x3291
Dr. Fetterolf  x3378
Dr. Willbrand  x3409
Dr. Ruszczzyk x3420
Dr. Pariyadath x3429
Course Objectives: ACHM 321L is designed to reinforce the key concepts learned in ACHM 321. In addition, the lab is designed to allow us to practice what we are learning. Chemistry is an experimental science and the lab is an integral part of your study. We will be doing labs that incorporate both non-instrumental and instrumental methods typically performed by analytical chemists. Accuracy and precision are “king” in this course, so your attention to detail is very important for you to be successful.

Each written lab, provided by me to you before each lab section, will outline the objectives and the procedures for each lab. You are expected to study this write-up prior to coming to lab. You only have 3 hours of lab instruction and all of the labs will take the entire time. If you are not familiar with the lab, time will be wasted and you will not finish in the allotted time. Each lab must be completed, so if you run out of time, you must finish the lab outside of the lab period at a time convenient to the instructor. I will not be giving pre-lab lectures since most of the material will be written in the lab. I will be available during the lab to answer questions and to help you with experimental techniques. You should arrive promptly and immediately begin the lab. I will have all the materials you will need ready at your disposal. You must work diligently and efficiency to accomplish each lab. Failure to work hard will result in incomplete labs. I cannot help you or your grade if you do not work hard.

Grading:

<table>
<thead>
<tr>
<th>Labs (10) at 50 pts each</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Points for the Course</td>
<td>500</td>
</tr>
</tbody>
</table>

Final letter grades will be based on the percentage of the total points earned and the scale below.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 90</td>
<td>A</td>
</tr>
<tr>
<td>88 or 89</td>
<td>B+</td>
</tr>
<tr>
<td>80-87</td>
<td>B</td>
</tr>
<tr>
<td>78 or 79</td>
<td>C+</td>
</tr>
<tr>
<td>70-77</td>
<td>C</td>
</tr>
<tr>
<td>68 or 69</td>
<td>D+</td>
</tr>
<tr>
<td>60-67</td>
<td>D</td>
</tr>
<tr>
<td>≤ 59</td>
<td>F</td>
</tr>
</tbody>
</table>

Each written lab report, worth 50 pts, will be awarded the following points for each section.

- Correct lab format and calculations: 30 pts
- Accuracy of answer: 20 pts (when applicable)

Total pts for each lab: 50 pts

The tolerance for accuracy for a given lab is based on the performance of the class as a whole and on the results obtained from previous classes. This is completely at my discretion. For labs that do not require an accurate answer to a known amount, all 20 points will be given if the lab is done properly.

Lab write-ups for a given lab are due the following week prior to beginning the next lab. If lab write-ups are not turned by the start of the next lab period, 5 pts will be deducted from that
lab’s grade for each day it is late. For instance, if a lab is 3 days late and the lab report initially earned 45 points, the final points for that lab would be 30.

Lab Report Guidelines: The following example (handout) of a correct lab write up must be copied in detail to receive full credit (30 pts) for the lab format and calculations sections of the lab. Pay special attention to this, especially on the first lab. I do not care how you collect the raw data from the lab. I recommend using a dedicated notebook that you can bring each week. I will not be grading this notebook. I have designed a lab write-up format that mimics what is often used in industry. The goal is to give you experience using this format that is required of analytical chemists in a “real world” setting. This is very similar to the format I used when working in industry. In industry, you would have a dedicated notebook for data collection, but your “deliverable” to your client would be a written report. You may be the brightest chemist ever, but if you cannot communicate through presentation and writing then you are ineffective and will have a hard time finding and keeping a job. I want you to treat me as your client. You are providing me with a research report that I can use for my operations and to show my management. This mock situation will give you a good feel for what is expected of you when you enter the workforce. Yes…you will be expected to write once you leave college!

The lab reports must be typed on a computer. Use available graphing software (Microsoft Excel) when appropriate. You may handwrite the calculations under the Results and Discussion section, but do so neatly! Lab reports are due prior to the start of the next lab period.

Attendance: Attendance of all labs is expected, though excused absences are understandable. Unexcused absences on lab days will result in a numerical grade of 0 for that lab. Excused absences will be allowed at my discretion. You will need to make up the lab at a time that is convenient to both you and the instructor.

Hazardous Chemicals: In this course, you will be using hazardous reagents for the experiments. If you follow the proper dress and conduct guidelines stated in this syllabus, you have no need to worry. I will be present during the lab period if a problem should occur. In addition, eye wash stations, lab showers, and fire extinguishers are readily available in the lab if needed. Please contact me with any questions.

Disability Statement: If you have a physical, psychological, and/or learning disability which might affect your performance in this class, please contact the Office of Disability Services, 126A BSED, (803) 641-3609, as soon as possible. The Disability Services Office will determine appropriate accommodations based on medical documentation.