CHEM 221 Analytical Chem Lecture and Lab

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# Tentative Schedule - Monday’s

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<td>Ch. 1 – Overview; Ch. 2 - Statistics; calibration of glassware lab</td>
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Grading Policy: Exams, 100 points each; Lab Reports- 100 points each
Final Notebook check- 100 points for a total of 1300 total points (depends on actual # of labs)
Grading Scale: A = 93-100%  A- = 91.92% B+ = 88-90%  B = 84-87%  B- = 81-83%
C+ = 78-80%  C = 74-77%  C- = 71-73%  D+ = 68-70%  D = 64-67%  D- = 61-63%
F = <61%

It should be noted that according to the Xavier University Catalog, a grade of “A” is earned for EXCEPTIONAL performance. This is the grading policy of the faculty of the Chemistry Department as well. Refer to the Chemistry Department web site for more information: [www.xavier.edu/chemistry/dept_policies_grading.cfm](http://www.xavier.edu/chemistry/dept_policies_grading.cfm)
Academic Misconduct Policy: A grade of zero will be given to any student violating the University Academic Honesty Policy. The student may appeal according to normal university procedures as stated in the University Catalog.

Special Accommodations: It is the responsibility of the student to inform the instructor of any individual medical or other conditions that may require special attention or accommodations at the beginning of the semester. Reasonable consideration will be given for these conditions. Please visit the LAC for assistance and further information.

Overview of course: This course will discuss analytical chemistry concepts used in clinical and general analytical chemistry. The class meets one day per week for three hours. The first 45-50 minutes will usually consist of the presentation of various analytical chemistry concepts; it is not necessarily a pre-lab discussion. Exam material will be taken from the classroom notes as well as lab experiments. Good scientific writing technique, data interpretation skills and use of Excel will be emphasized.

NOTE: This course satisfies NSTA Reporting Standards for Teaching Science – numbers 1a, 1b, 1c, 1d, 2b, 3b.

Class Policies

Attendance: Attendance is mandatory for all class meetings. Only documented illness and family/personal emergencies will be considered excused absences. 5 points will be deducted at the end of the term for each unexcused absence. Missed labs cannot be made up. However, if you hand in the pre-lab the next week, you will receive 40 points for the lab. Otherwise, a zero will be assessed. Missed exams cannot be made up except in the case of a signed physician’s statement. Then, a make-up exam will be administered within one week.

Due Dates: Lab reports are due one week after the lab is performed. Late Labs are accepted only one week late, and with a 50-point penalty.

Attire and Lab Safety: Laboratory safety is very important. Safety glasses/goggles, long pants and fully covered feet (shoes or sneakers only) are required. Please tie back long hair. No food, drink, or gum is permitted in lab. Lab aprons are available, as are gloves. You will not receive credit for any lab in which a safety infraction is committed.

Pre-Labs: Before coming to class, please prepare a pre-lab. The pre-lab consists of a short summary of the objectives of the lab, a summary of the procedure (NOT a rewrite of the steps), and what you expect to learn from the lab. The pre-lab is due at the beginning of the class. The pre-lab will serve as the cover page to your formal lab report. A copy of the pre-lab must be taped in your lab notebook.

Laboratory Notebook: A well-maintained lab notebook is critical for scientists in any discipline. This notebook is the “evidentiary data” for all the work you do in lab work and research. It is the basis for journal articles and your main defense in a court of law. The lack of a well-kept notebook has ruined many careers! Your notebook must be capable of producing copies- that is, it should contain duplicate sheets- the original sheet on which you enter data and the copy that is made on the next page (usually yellow). The pages must be numbered sequentially, and NO original (white) pages may be removed from the lab notebook. The lab notebook may be graded in two areas: Quality of results and the quality of the presentation (neatness, clarity, completeness). Your lab notebook should be written in such a way that a future student can read, understand, and repeat your experiment. The lab notebook must contain the following sections for each lab experiment:
- **TABLE OF CONTENTS**: identify the pages used for each lab as the semester progresses.
- **PRE-LAB COVER PAGE** for each lab.
- **DETAILED PROCEDURE**: Use your own words to describe, in detail, exactly what steps you performed, in the order you did the steps. The procedure you record here should be able to be followed by another student, and they should obtain the same results you did. Note any deviations from the method described in your pre-lab write-up and/or the lab manual. Include waste disposition.
- **DATA**: Include ALL observations, all measurements in a logical fashion. Include instrument print-outs (or copies) as applicable.
- **RESULTS/CALCULATIONS**: Show all final results and calculations used in determining final results. Calculate percent error if a true value is known. USE CORRECT UNITS.
- **ENTRY ERRORS**: If you make an error while writing in your lab notebook, simply draw a single line through the erroneous entry and initial the error and corrected entry:

  Example: The thermometer read 35 degrees F, 40 degrees C

**NOTE**: You are required to word-process your final lab reports (that will be turned in). You may attach a copy to your lab notebook.

**The Lab Report**
- **PRE-LAB COVER PAGE** for each lab. This will have your name, title of lab, and date submitted to me.
- **BACKGROUND**: Provide a brief explanation of the chemical principle(s), and theory of the lab. Provide chemical equations to indicate the reactions that will (did) occur. Explain briefly why the analyte is important clinically (physiologically), and how this lab can determine the concentration in the medium (blood, water, beverage…)
- **REAGENTS AND MATERIALS**: Provide a listing of all reagents, solutions, solid chemicals, and all equipment used in the experiment.
- **PROCEDURE**: Provide a brief summary of the procedure you followed, and reference the pages in your lab notebook that contain the detailed procedure. Also discuss waste disposition.
- **RESULTS: DATA & OBSERVATIONS**: Include a summary of your observations, data (in tables or charts as needed) and final results.
- **RESULTS: CALCULATIONS**: Show all final results and an example calculation used in determining final results. Calculate percent error if a true value is known. USE CORRECT UNITS. If graphs were generated, please include a copy here.
- **CONCLUSIONS**: Discuss relevance and significance of the lab as a whole and the meaning of your results. What do these results indicate clinically? Discuss sources of error, and possible ways to continue and/or improve the investigation. Did you meet your learning objective? If so, how? If not, why not? Answer any **post lab questions** following the conclusion section.
- **YELLOW SHEETS**: Include the yellow sheets from your lab notebook for the procedure and calculations.

**Please note**: the schedule and procedures in this syllabus are tentative and are subject to change if conditions warrant. Reasonable notice will be provided if a change is required.