2014

341-01 Instrumental Analysis Lab

Adam Bange

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XAVIER UNIVERSITY
CHEM 341 (Instrumental Analysis lab)

INSTRUCTOR: Dr. Adam Bange
Bangea1@xavier.edu (513) 745-3950

OFFICE HOURS: MWF 9:00-11:00; and by appointment. (Logan 301A)

PREREQUISITES: Chem. 340 (Instrumental Analysis)

TEXT: No assigned text. Labs will be given in handout form through Blackboard.

FORMAT: 8:30 am - 12:20 pm weekly lab

Student Learning Outcomes: At the end of this course the student will be able to:
Use spectroscopic, electrochemical, and chromatographic techniques to analyze samples.
Understand basic statistical techniques used to analyze data.
Write a scientific paper style report
Propose an analytical strategy to solve an analytical problem.

ATTENDANCE: Attendance is required in order to complete the assigned laboratory experiments. Only documented illnesses and emergencies will be considered excused absences.

SPECIAL NEEDS: It is the responsibility of the student to inform the instructor at the beginning of the semester of any individual conditions, medical or otherwise, that may require special attention. Appropriate consideration will be given in these situations.

LAB REPORTS: A Lab report must be turned in the week following every completed experiment. The lab report must contain:
Introduction-A background describing the chemical principles involved in the experiment, the relevance of the analyte of interest, and a description of the analytical approach being used.
Materials/Methods- A list of all reagents used, and a description, in your own words, of what you did. Your description should be sufficiently complete that another scientist could follow your instructions and achieve the same results.
Results/Discussion- Include a summary of your results, show all calculations used, and include any graphs/tables/charts generated.
Conclusions- Discuss the meaning of your results and the significance of the lab. Address sources of error, further experiments, and other conclusions.

The lab reports are worth 50% of the final grade, and the project is worth 30% of the final grade.

LAB NOTEBOOKS: A lab notebook with duplicate sheets (a copy of each page can be torn out and handed in with each lab report) must be kept according to proper laboratory standards.

FINAL EXAM: The final exam will cover the techniques, calculations, and instruments used in this course. It is worth 20% of the final grade.
NOTE: Students are responsible for taking exams at the scheduled times. Make-ups will be given only with proof of illness or proof of some other conflicting event (note from an appropriate university counselor). If you are ill, please call or e-mail that morning. However, notice of a conflict must be given before the testing period. No electronic devices other than calculators will be permitted.

GRADING SCALE:  
A 94-100;  A- 91-93;  B+ 88-90;  B  84-87;  B- 80-83;  C+ 77-79;  
C  73-76;  C- 70-72;  D+ 67-69;  D  63-66;  D- 60-62;  F  59 and below.

Upon review at the end of the semester, this scale may be adjusted downward.

NOTE: University Catalog states a grade of “A” is earned for “Exceptional” performance. This is also the grading policy of the Chemistry Department Faculty. Department Grading Policies: http://www.xu.edu/chemistry_dept/courses.htm

ACADEMIC MISCONDUCT POLICY: Cheating on any examination will result in a grade of “F” for the course. The student may appeal according to normal procedures as stated in the University Catalog.

CHEM341 Satisfies NSTA reporting standards for teaching science numbers 1a, 1b, 1c, 1d, 1e, 3b, 5d

TENTATIVE SCHEDULE--SPRING 2014

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic/Instrument</th>
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<tbody>
<tr>
<td>1-5</td>
<td>First Rotation of Three labs</td>
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<tr>
<td></td>
<td>Atomic Absorbance</td>
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<td>UV-Vis Absorbance</td>
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<td></td>
<td>Fluorescence</td>
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<tr>
<td>6-10</td>
<td>Second Rotation of Three Labs</td>
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<td></td>
<td>GC (or FTIR)</td>
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<td></td>
<td>HPLC</td>
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<td></td>
<td>Electrochemistry</td>
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<tr>
<td>11-16</td>
<td>Projects</td>
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<tr>
<td></td>
<td><strong>FINAL EXAM</strong></td>
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<td></td>
<td>Final day of Class</td>
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</tbody>
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The schedule and procedures in this course syllabus are subject to change in the event of extenuating circumstances. These changes, if necessary, will be announced to the class in as timely a manner as possible.