CHEM 30 Analytical Chemistry I

Instructor: Dr. Kevin Owens
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Office Hours: T 2:30-3:30 p.m., Th 5:00-6:00 p.m.
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Fall Term 2004
Class Meetings: T/Th 3:30-4:50 p.m.
Class Room: Stratton 101

Textbook:

List of Topics:
Introduction to Analytical Techniques chapter 1
Introduction to Optical Methods chapter 13
Experimental Measurements & Statistics chapter 1, appendix 1
Review of Electricity
Basic Electronics & Electronic Test Equipment chapter 2-3
Signals & Noise chapter 5
Properties of Electromagnetic Radiation chapter 6
Components of Optical Instruments chapter 7
Molecular Absorption Spectroscopy chapter 13
Atomic Spectroscopy chapter 8-9
Molecular UV/visible Absorption Spectroscopy chapter 14
Molecular Luminescence Spectroscopy chapter 15
Infrared Absorption Spectroscopy chapter 16-17

Proposed Schedule:
Nov 2 EXAM I
Nov 25 Thanksgiving Holiday (no class)
Finals week EXAM II

Course Grading:
2 Exams (35% each for a total of 70%)
Problem Sets (several of which will total 30%)
Extra Credit Paper (topic must be approved by 11/4/04)

Extra Credit Paper:
You may write an extra credit research paper that will be due the day of the final examination. After all of the problem sets and exams are graded and the final grades are assigned, I will read the papers and grade them on a scale of 0 to 10. An excellent paper can therefore boost you one full letter grade. Because
I grade them after the final grades are assigned (from your exams and problem sets), there will be no effect on your grade in the course even if everyone in the class writes a paper and you do not. The paper may be on any analytical subject, but I must approve it before you begin. For example, you can choose an analytical technique and write about the technique itself or the instrumentation used in performing the measurements. You may also choose a material and describe several different analytical techniques that can be used to measure some important property of the material. If you used an instrument on co-op and always wanted to know more about how it worked, or you are developing a process for your senior design project and know you need to use some analytical instrumentation there, this is your chance. I encourage you to use your textbook or issues of the journal Analytical Chemistry (in the library or electronically through the Hagerty library electronic journals page) to find a topic of interest to you. The first issue of the month of Analytical Chemistry contains a number of review articles written by experts in their field that would be appropriate starting places for the papers.

The papers should be 7 to 10 pages (single-spaced, with one-inch margins) in length and be written in an appropriate scientific style (i.e., using references). I expect to see good use of the scientific literature-you may use a textbook as a starting point, but you must use at least five primary references (research articles or monographs) in writing the paper. To ensure that you are making good progress on your report you must submit a list of references (bibliography) electronically by November 23, 2004. The final paper must be turned in electronically by the day of the final.

Please remember that plagiarism has many forms and is never acceptable.

Additional Reading:


These texts may be found in the Hagerty Library.

WebCT

We will be using WebCT (Drexel’s on-line course tool package) to enhance communication in CHEM430. The instructions below tell you how to log on and begin using WebCT.

1) Enter the Drexel WebCT web site at http://webct.drexel.edu or through DrexelOne.
2) After logging in to WebCT, select CHEM430 from the list of courses on the left side of the screen.
3) You will now be in the CHEM430 course area. Select the Bulletins icon to read posted messages, the Calendar icon for the course schedule, etc.