CHEM430 Analytical Chemistry I
Section 001

Instructor: Dr. Kevin Owens  Fall Term 2001
Office: Stratton Hall 415  Tel. 215-895-2621  Class Meetings: MWF 2:00-2:50 p.m.
Office Hours: M 3:00-4:00 p.m./W 1:00-2:00 p.m.  Class Room: Stratton Hall 408
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Textbook:

List of Topics:

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

Proposed Schedule:

- Oct 8  Columbus Day (no class)
- Nov 7  EXAM I
- Nov 21/23  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 11/2/01)

Extra Credit Paper:

You may write an extra credit research paper which will be due the day of the final examination. After all 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 (from your exams and problem sets) are
assigned, 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 it must be approved by myself 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) 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 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 21, 2001. 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 are on overnight reserve in the reserve book room of the Hagerty Library.