SYLLABUS
Chemistry 426/526 Instrumental Analysis Lecture
Winter Quarter 2008
MWF 2:00 – 3:05 p.m. Cramer Hall 183

Instructor: Dr. Dean B. Atkinson
SB2 - 476 (phone 725-8117, email atkinsond@pdx.edu)
Web: WebCT (backup http://www.chem.pdx.edu/~atkinsdb/Teachweb.htm)

Office Hours: Mon. Tue. Wed. 9:30 - 10:30 a.m. *or by appointment.*

Grading: Homework worth **50 points** (5 sets x 10 points/set)
Quizzes worth **50 points** (best 5 x 10 points each)
Two Midterm Exams (see schedule below) worth **100 points** each
Final Exam (Wednesday, March 19, 2008, 12:30 p.m.) worth **150 points**
Out of Class Participation Exercises / Teacher Evaluation worth **50 points**
Grades are based on the total (out of 500) of the above categories. The following percentage scores will guarantee the letter grade shown, however I may choose to revise the breakpoints downward **at my discretion** and differentiate (+'s and –'s) within the letter grades:
[(A) > 90%, (B) > 80%, (C) > 65%, (D) > 50%]

Schedule (subject to change, except exam dates)

M	Jan. 7	Introduction / Basic Electronics (V, I, R)
W	Jan. 9	Laws (Ohm, Kirchoff) / Power / OpAmps / Time & Freq.
F	Jan. 11	Calibration / Stand. Add. / Int. Stand.
M	Jan. 14	Noise / LOD / Stats / QAQC/ **Quiz 1**
W	Jan. 16	Intro (Review?) to Electrochemistry
F	Jan. 18	The Nernst Equation, Potentiometry
M	Jan. 21	**Martin Luther King holiday - University Closed**
W	Jan. 23	Ion-Selective Electrodes
F	Jan. 25	Polarization / Amperometry / Polarimetry
M	Jan. 28	Voltammetry **/ Quiz 2**
W	Jan. 30	**Midterm 1 - in Class (60 minutes)**
F	Feb. 1	Physics / Optics Review
M	Feb. 4	EMR / Detectors / Sources (inc. Lasers) **/ Quiz 3**
W	Feb. 6	Spectrometer Design
F	Feb. 8	Absorption Spectroscopy, Beer-Lambert Law

M	Feb. 11	Luminescence, Fluorescence, FT **/ Quiz 4**
W	Feb. 13	Atomic Spec. / Sources / Bandwidth
F	Feb. 15	Atomization, etc.
M	Feb. 18	Intro to Mass Spec. / Atomic vs. Molecular **/ Quiz 5**
W	Feb. 20	Physics Review / Mass Filters
F	Feb. 22	Sources
M	Feb. 25	Alphabet soup: SIMS, MS/MS, etc./ **Quiz 6**
W	Feb. 27	**Midterm 2 - in Class (60 minutes)**
F	Feb. 29	Chromatography Basics
M	Mar. 3	GC and LC/ **Quiz 7**
W	Mar. 5	Chromatography Detectors
F	Mar. 7	Electrophoresis
M	Mar. 10	Other Chromatographic Methods/ **Quiz 8**
W	Mar. 12	Tandem Methods
F	Mar. 14	Wrap-up / Review for Final

Wednesday, March 19, 2008, 12:30 - 2:20 p.m. **FINAL EXAM**

THE TEXT is Principles of Instrumental Analysis 6th Edition by Skoog, Holler, and Crouch. This text fills in a lot of the holes from the text by Skoog that we used in Quantitative Analysis if you took it here. We will be skipping around a bit in the text and some material may come from other sources. I usually find that a good study technique is to quickly read over the sections of the text which will be covered **before** the lecture and then to read it again more carefully at some point afterward.

THE HOMEWORK will be graded for completion (essentially – did you do it?) and returned to you. I have no problem with students working together on homework, if everyone does their own work. Not doing your own work will probably result in poor performance on the exams and thus carries its own penalty. Late homework will be penalized to half credit, but ½ is better than zero!

THE QUIZZES will be administered weekly near the end of the class on Mondays, except for the first day and Martin Luther King Day, Jan. 21. These are simple qualitative checks (multiple choice) that you are keeping up with the reading and lecture material. There will be eight quizzes, five of which will be counted. If you miss class, you use a drop (no make-ups).

THE MIDTERMS (2) will be in-class, 60 minute exams. You will be allowed to bring a one-page set of "crib notes" containing any information that you find useful.

THE FINAL will be two hours in-class. In this case you may bring two pages of notes. Note the drastic time change from our usual meeting slot.