CHEMISTRY 437: INSTRUMENTAL METHODS OF ANALYSIS

Semester: Fall 2009
Meeting Time: MWF 9:05-9:55 am
Meeting Location: BRL 206
Course Materials at www.udel.edu/sakai

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Course Objective:
To provide an advanced understanding of common instrumental methods of analysis and their use in analytical problem solving.

Required Textbook:
D. A. Skoog, F. J. Holler and S. R. Crouch, "Principles of Instrumental Analysis", 6th Edition, Thomson Brooks/Cole, New York, 2007
ISBN-13:978-0-495-01201-6

Assignments and Grading (500 points total)

Notes:

- Problem assignments from the textbook are given below for each exam.
- Assigned problems from the textbook will constitute approximately 20-25% of the points on each exam. They may appear on the exam verbatim or in a modified form. The remainder of the points will be taken from course notes (primarily) and the textbook. A list of topics to focus your studying will be posted at www.udel.edu/sakai
- The three in-class exams are closed book. An 8.5" x 11" note sheet is permitted for the final exam.

Assignment	Date	Points
Assigned problems for Exam #1: **1**-9; **A1**-14, 15, 16, 17; **13**-8, 9, 13b,g; **14**-1, 2, 7, 21; **15**-1, 2, 3, 4, 9, 10, 11; **6**-2, 3; **7**-1, 2		
Exam #1	9/28	100
Assigned problems for Exam #2: **7**-15a,c,e, 23; **5**-1, 2, 5, 10; **8**-1, 11; **9** – 3, 9, 17, 20; **10**-1, 2, 8, 10; **16** -7; **17**-1, 2, 11; **18**-1, 3b		
Exam #2	10/26	100
Assigned problems for Exam #3: **20**-13, 17, 18, 19a,b,f; **26**-1, 2, 9, 13, 14, 15, 16, 17, 18, 19, 20; **27**-9, 21, 27; **28**-1a,d,e,f,h,i, 4, 10, 11		
Exam #3	11/20	100
Assigned problems for Final Exam: **30**-1, 2, 3, 7, 8; **22**-1, 9; **23**-5, 20a, 21; **25**-13; plus all previously assigned problems		
Final Exam	TBA	200

Class Schedule

Date	Topic	Date	Topic
9/2	Basic Analytical Principles Ch. 1D-E, A1	10/26	EXAM #2
9/4		10/28	Mass Spectrometry Ch. 11, 20
9/9		10/30	
9/11	Absorption, Fluorescence Ch. 13, 14, 15	11/2	
9/14		11/4	
9/16		11/6	Basic Chromatographic Theory Ch. 26
9/18		11/9	
9/21	Spectroscopic Instrumentation, Electronics and Signal Processing Ch. 6, 7, 5, 3	11/11	Gas Chromatography Ch. 27
9/23		11/13	
9/25		11/16	Liquid Chromatography Ch. 28
9/28	EXAM #1	11/18	
9/30	Spectroscopic Instrumentation, Electronics and Signal Processing Ch. 6, 7, 5, 3	11/20	EXAM #3
10/1		11/23	Capillary Electrophoresis, Ch. 30
10/5		11/25	Potentiometry Ch. 22, 23
10/7	Atomic Spectroscopy Ch. 8, 9, 10	11/30	
10/9		12/2	Voltammetry Ch. 25
10/12	Vibrational Spectroscopy Ch.16, 17, 18	12/4	
10/14		12/7	Analytical Problem Solving
10/19	X-Ray Fluorescence, Ch. 12	12/9	
10/21	Surface Analysis, Ch. 21	TBA	FINAL EXAM
10/23			