CHEMISTRY 623/423

Mass Spectrometry
Spring 2013

11:00 a.m.- 12:15 p.m. Tue LT 300
Thu, LT 300*
FR 237on 2/7, 2/14, 3/7, 3/14, 4/11, 4/18, 5/2

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Office Hours:
Wed, Thu 9:30-10.30 a.m.,
or by appointment

TENTATIVE LECTURE SCHEDULE

WEEK	TOPIC	CHAPTER
01/14	Introduction/Ion Sources	1, 2
01/21	Ion Sources (cont-d)	2
01/28	Mass Analyzers	3
02/04	Mass Analyzers (cont-d), Tandem MS	3, 4
02/11	Tandem MS (cont-d), MS/Separation	4, 5
02/18	MS/Separation (cont-d)	5
02/25	Quant. Analysis, **Exam I 2/28**	14
03/04	In-class presentations, Analysis of biomolecules	8
03/11	**Spring break**	
03/18	" " " " " "	8, 9
03/25	" " " " " "	10, 11
04/01	" " " " " "	12, 13
04/08	Environmental/forensic applications of MS	15, handout
04/15	Special topics, In-class presentations	handout
04/22	In-class presentations	
04/29	**Exam II 5/2, or take-home**	

Textbook: C. Dass *" Fundamentals of Contemporary Mass Spectrometry "*, Wiley, 2007.
Supplementary materials will be distributed electronically or in paper form.

Grading:		
	Exam I	= 25% (100)
	Exam II	= 25% (100)
	Take-home problems	= 25% (100)
	In-class presentation	= 20% (80)
	Class participation	= 5% (20)
	Total	= 100% (400)

The number and format of take-home problems and in-class presentations will be determined later depending on the class size.

Supplementary information and powerpoint lecture slides will be posted at http://webcourses.niu.edu Using Blackboard™ interface. You will need you z-number activated for on-line course access.

Course objective: The goal of this course is to provide basic background and fundamental understanding of a mass analysis and ionization techniques applied in biochemistry. This includes learning the underlying principles of a particular MS technique, understanding its figures of merit, and deciding which technique is the most appropriate for a specific problem. Interpretation of mass spectra of major classes of biomolecules will be discussed in the lectures and reinforced in the take-home problems. General strategies for combining MS and traditional bioanalytical techniques will be reviewed. Hands-on experience (short training courses) will be acquired on the two departmental mass spectrometers. In addition, the role of MS in Homeland Security, as well as in environmental and forensic application will be discussed.

- I would be pleased to discuss any disability-related needs during my office hours.