2006 Chemistry 360 Lisensky

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
JAN	16	17	18	19	20
	23	24	25 AA Example	26	27 QUIZ
	LABS 26-27	Atomic Absorption, including ICP Notes AA; Harris 21 [20]			LABS DUE
FEB	30	31	1 C Example	2	3 QUIZ
	LABS 26-33	Chromatography: Theory, HPLC, ion, GC, SFC Notes C; Harris 23, 24, 25, 26 [21, 22, 23]]			LABS DUE
	6	7	8	9	10 QUIZ
	LABS 1-3, 26-33	NMR chemical shifts, coupling, magnetic equivalence Notes NMR-1; Silverstein 3.1-3.5, 3.8.1, 3.9; any organic text			LABS DUE
	13	14	15	16	17 QUIZ
	LABS 1-8, 26-33	Relaxation, exchange, splitting by other nuclei, paramagnetic Notes NMR-2; Silverstein 3; any organic text			LABS DUE
	20	21	22	23	24 QUIZ
	LABS 1-10, 26-33	Carbon and other non-hydrogen NMR Notes NMR-3; Silverstein 4, 6			LABS DUE
MAR	27	28	1 NMR Figure	2	3 QUIZ
	LABS 1-12, 26-33	Spectral editing and 2D NMR Notes NMR-4; Silverstein 5			LABS DUE
	6	7	8	9	10
			MIDTERM BREAK		
	13	14	15 EPR Figure	16	17 QUIZ
	LABS 1-13, 26-33	EPR hyperfine, splitting diagrams, anisotropic, fine splitting Notes EPR			LABS DUE
	20	21	22	23	24 QUIZ
	LABS 1-17, 26-33	Molecular spectroscopy, force constants, organic infrared Notes IR-1; Silverstein 2; any organic text			LABS DUE
	27	28	29 IR/Raman Figure	30	31 QUIZ
	LABS 1-20, 26-33	Inorganic infrared, Raman, symmetry Notes IR-2; any inorganic text			LABS DUE
APR	3	4	5 EAS Figure	6	7 QUIZ
	LABS 1-33	Electronic absorption spectroscopy, fluoresecence Notes EAS; Harris 18, 19, 20 [18, 19]			LABS DUE
	10	11	12 MS Example	13 SPRING DAY	14 QUIZ
	LABS 1-33, 43	Mass Spec: probability, parent & isotope peaks, fragments. Notes MS; Silverstein 1, Harris 22 [21]			LABS DUE
	17	18	19 SYMPOSIUM	20	21 iV Figure
	LABS 1-37, 43	Voltammetry: polarography, differential pulse, cyclics Notes iV; Harris 17 [17]			LABS DUE
	24 QUIZ	25	26	27	28
	LABS 1-37, 43	Comparison of methods Notes Review; Silverstein 7, 8			LABS DUE (last chance!)
MAY	1 QUIZ	2	3 Review Evaluation	4 No Classes	5 6 FINAL EXAM 9:00 am
	LAB CHECK OUT				
	8	9	10	11	12

TEXTS Lisensky, *Instrumental Methods Notes*, 2004.
Silverstein, Webster and Kiemle, *Spectrometric Identification of Organic Compounds*, 7th ed., 2005
Harris, *Quantitative Chemical Analysis*, 6th Ed., 2003; [*Exploring Chemical Analysis*, 3rd Ed.. 2005.]

The focus of this Instrumental Analysis course is on preparation of samples, operation of instrumentation, and interpretation of spectra. *There will not be any lectures in this course*. Do the reading before class. We will use class time to work on problems and answer questions.

Class Day 1

- Read over the new notes before class and come to class prepared to ask questions. If you are not prepared, class time will not be productive for you (and you will find the next quiz difficult).

Class Day 2

- Do the study problems in the lecture notes for the week. We will go over them in class. If you are not prepared, class time will not be productive for you (and you will find the next quiz difficult).
- For weeks with FIGURE listed on the syllabus, find and bring to class a primary literature spectrum (not text or *J. Chem. Ed*.) concerning the current instrument method. For example, if we are studying NMR, thumb through journals looking for an NMR spectrum that you can explain. Be prepared to report the instrument operating conditions. Similarly, for weeks with EXAMPLE listed, find and bring to class a literature use of the technique. (*Anal. Chem.* is a good source.) Be prepared to explain why they chose that method and what it told them. These figures and examples must be from published journals, but you can use their online pdf files. See Resources at http://www.beloit.edu/~chem.

Class Day 3

- There will be a quiz over that week's material. Do your studying during the week and do not wait until the night before to start.

Labs

- *You are expected to be present during the scheduled lab period*. You may also need to find a regular additional time you can work in lab. In general you will be working on more than one experiment each week.
- Chemical safety sheets (www.beloit.edu/~chem/safety) are due at the beginning of each lab period. You will need to do 20 during the semester.
- You may turn in up to two lab reports by 4:00 Friday each week as indicated. (Late reports will count for the following week). The grade scale is based on 13 lab reports; extra experiments count as extra credit. See the *Chem 360 Lab Manual* for more detail.

Points in this Course

13 quizzes (30 points each)	13 lab reports (26 points each)
8 figures/examples (10 pts each)	20 safety sheets (5 points each)
1 final exam (100 points)	lab checkout on May 1 (10 pts)

If you have a disability and would like to speak to someone about possible accommodations, please visit the LSSC (Learning Support Services Center) located on the first floor of 635 College St. You will need to provide appropriate documentation of your disability to Diane Arnzen, Director of the LSSC. If you wish to receive accommodations please provide me the LSSC Accommodation Verification Letter dated for this semester as soon as possible so your learning needs may be appropriately met.

You will find that this course covers an amazing amount of material and asks you to remember things from many other courses (Equilibrium, Organic, Inorganic, Quantum, Physics, etc.). Make use of your varied backgrounds by sharing, do your best, and have fun. My office is Chamberlin 423 or email lisensky@beloit.edu if you have questions.