

# **Chemistry 882/Chemistry 890 section 2: Spectroscopy and Crystallography with Applications to Biomolecules**

Spring 2009 MWF, 1:50 p.m. – 2:40 p.m., Room 136 Chemistry, 3 credits

## **Reference Books:**

K. E. van Holde, W. C. Johnson, and P. S. Ho, Principles of Physical Biochemistry, second edition (2006)

P. W. Atkins and R. S. Friedman, Molecular Quantum Mechanics, fourth edition (2005)

D. Voet and J. G. Voet, Biochemistry, third edition (2004)

## **Syllabus**

<b>Week</b>	<b>Topic</b>	<b>Reading</b>
Jan. 12 – 16	Review of Protein and Nucleic Acid Structure	Voet, Chapter 4, 5.1-5.3, 8.1, 8.3-8.5 VJH, 1.5
Jan. 21 – Feb. 6	Orders of Magnitude of Atoms and Molecules	VJH, 8.1 AF, 7.3
Feb. 9 – 13	Quantum Mechanical Background	VJH, 8.2 AF, 1.1-1.20
Feb. 16 – 27	Vibrational Spectroscopy	VJH 8.3, 9.2, 9.3 AF, 2.16–2.18, 10.8–10.10, Fur. Inf. 6, 7
Mar. 2 – 27	Electronic Spectroscopy, Angular Momentum, Magnetic Resonance	VJH, 8.3, 9.1, 12.1-12.4, 12.6-12.8 AF, 3.9-3.14, 7.1-7.2, Fur. Inf. 8
Mar. 30 – Apr. 10	Absorption and Emission of Radiation, Fluorescence	VJH, 8.4, 8.5, Chapter 11 AF, 10.1, Fur. Inf. 16, 17
Apr. 13 – May 1	X-ray Crystallography	VJH Chapter 6

Please contact Dr. David Weliky (weliky@chemistry.msu.edu) if you have any questions about this course.