Chemistry 625  
Chemical Applications of Magnetic Resonance Spectroscopy  

Spring 2019

Instructor: Prof. Ralf Haiges  
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Days and Time: Tue. & Th., 9.30 a.m. to 10.50 a.m.
Class Location: SGM226

This course will not have any formal prescribed texts. Material from the following suggested books will be used from time to time.


Exams: 2 Midterm Tests (40%), Final Term Paper on selected topics (40%), Occasional problem sets (20 %).

Syllabus: Outline of the material that will be covered.

- Introduction to Nuclear Magnetic Resonance (NMR) Spectroscopy
- Physical Aspects of NMR and Basic Theory- Single Pulse Experiment
- FT NMR
- Experimental Aspects
  - $^1$H NMR spectra of Organic Molecules
  - $^1$H NMR Chemical Shifts and Spin-Spin Coupling Constants
  - Origin of Chemical Shifts and Coupling Constants
  - $^{13}$C and $^{19}$F NMR Spectroscopy
- Spin Decoupling
- NMR of Other Nuclei
- Dynamic NMR
- CIDNP
- Multiple Pulse Experiments
- Polarization Transfer
- Spectral Editing
- Connectivity through Bonds, Space and Chemical Exchange
- Two Dimensional NMR
- NMR of Solids
- Imaging
- Theoretical Methods (IGLO, GIAO)
NMR Bibliography


"NMR Basic Principles and Progress", Springer Verlag, Volumes 1-33. Each volume is dedicated to a particular nucelus or technique.


