JCP422H/CHM1455H NMR Spectroscopy

Instructor: Julianne Kitevski-LeBlanc
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Office hours: virtual – please contact me via email to arrange a time.

Lecture hours:
Fridays, 9-11 am, IB 370

Zoom Meeting ID: 854 7151 3342
Passcode: 497693

Textbook: Keeler, J. (2010). Understanding NMR spectroscopy (2nd Ed.) Wiley

This course will cover the fundamental concepts in modern NMR spectroscopy. This includes both classical and quantum descriptions, multidimensional NMR, relaxation and dynamics. In addition, tutorial sessions and assignments will combine theoretical and practical aspects of experimental NMR, including the use of software for processing and data analysis.

Upon successful completion of the course, you will be able to:

1. Understand fundamental concepts in NMR spectroscopy.
2. Describe spin dynamics using both classical and quantum descriptions
3. Gain experience in data processing and analysis using software packages.
4. Understand theoretical and practical aspects of multidimensional NMR.
5. Describe fundamentals mechanisms of spin relaxation and molecular dynamics.
6. Appreciate and describe modern methods and applications of NMR spectroscopy.

Evaluation:

Undergraduate JCP422H
Assignments (4 - 10% each) 40%
Mid Term Exam 20%
Final Exam 40%

Graduate students CHM1455
Assignments (5 – 8% each) 40%
Mid Term Exam 10%
Final Research proposal 20%
Final Exam 30%

Tentative schedule:

Date	Topic	Date	Topic
January 14	Introduction to NMR Parameters I	January 21	Introduction to NMR parameters II and software tutorial
January 28	Vector Description of NMR	February 4	NMR Data and Fourier Transform
February 11	Product Operator Formalism	February 18	2D NMR
Feb 22-25, 2022	**Reading Week**	March 4	Mid-Term test and software tutorial
March 11	Relaxation and Dynamics I	March 18	Relaxation and Dynamics II and Software tutorial
March 25	Fluorine NMR / Advanced Topics I	April 1	Advanced Topics II
April 8	Review		

Policy on lateness
20 % per day late