

Techniques of Organic Research

Chem 1380 and 2380, Spring, 2019 – Mon/Wed 9:00-9:50 – Chevron, Rm 132

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The course will provide an introduction to the use of spectroscopic techniques (UV, IR, NMR and MS) for identification of structures of organic compounds

OFFICE HOURS: by appointment, send an email

PREREQUISITES You should have a basic understanding of spectroscopic techniques at the level of introductory undergraduate organic chemistry courses. If you studied OChem at Pitt, see Vollhardt and Schore, Chapters 10 (NMR), 11 (IR and MS) and 14 (UV).

BOOKS: *Spectrometric Identification of Organic Compounds* (7th ed), by R. M. Silverstein and F. X. Webster (google and download the pdf version or buy the 8th edition; on reserve in the Chem Library)
Structure Determination of Organic Compounds: Tables of Spectral Data, by E. Pretsch, P. Bühlmann and M. Badertscher, ISBN-10: 3540938095 (Available online for free via Pitt Library)
Organic Structure Analysis, by P. Crews, J. Rodriguez and M. Jaspars, ISBN-10: 0195336046 (on reserve in the Chem Library)
Basic One- and Two-Dimensional NMR Spectroscopy, by H. Friebolin, ISBN-10: 3527327827 (on reserve in the Chem Library)

GRADING: Mid-term exam, 30%; Final exam, 50%; Project to identify an unknown by spectral analysis, 20%

Course policies

Video recordings and photographs are not allowed. I strongly suggest that you to take notes.

Audio recordings are not allowed without special permission.

Course materials are copyrighted. You can share the course materials (handouts, exams, etcetera) with anyone for study purposes.

Academic Integrity: <http://www.cfo.pitt.edu/policies/policy/02/02-03-02.html>

Disability Recourses and Services: <http://www.studentaffairs.pitt.edu/drs/welcome>

Chem 1380, 2380 Spring 2019, Tentative Outline

<u>Date</u>	<u>Topic</u>
Monday, Jan. 7	UV
Wednesday, Jan. 9	UV
Monday, Jan. 14	IR
Wednesday, Jan. 16	IR
Monday, Jan. 21	MLK Day (No Class)
Wednesday, Jan. 23	NMR basics
Monday, Jan. 28	NMR basics
Wednesday, Jan. 30	¹ H NMR chemical shifts
Monday, Feb. 4	¹ H NMR chemical shifts
Wednesday, Feb. 6	¹ H NMR chemical shifts
Monday, Feb. 11	¹ H NMR coupling
Wednesday, Feb. 13	¹ H NMR coupling
Monday, Feb. 18	¹ H NMR coupling
Wednesday, Feb. 20	Dynamic NMR
Monday, Feb. 25	¹³ C NMR

****MID-TERM EXAM****
Wednesday, Feb 27

Monday-Friday, Mar. 4-8	Spring Break
Monday, Mar. 11	¹³ C NMR
Wednesday, Mar. 13	Multi-pulse experiments
Monday, Mar. 18	Multi-pulse experiments
Wednesday, Mar. 20	2D NMR
Monday, Mar. 25	2D NMR
Wednesday, Mar. 27	NOESY

Monday, Apr. 1	No Class
Wednesday, Apr. 3	MS
Monday, Apr. 8	MS
Wednesday, Apr. 10	MS
Monday, Apr. 15	MS
Wednesday, Apr. 17	TBD

****FINAL EXAM****
Week of April 22