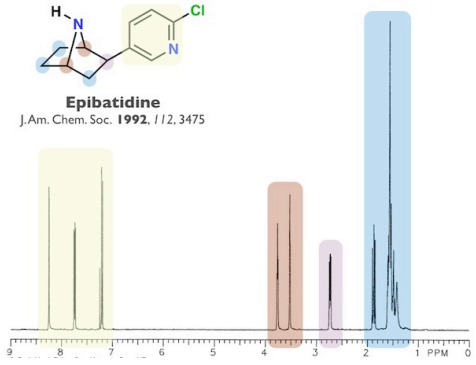

CHEMISTRY 744

Organic Spectroscopy, Spring 2019

Instructor: Professor Gregory R. Cook
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Telephone: 231-7413
Email: Gregory.cook@ndsu.nodak.edu
Office Hours: by appointment
WEBPAGE: cook.chem.ndsu.nodak.edu

Books in the Library:

Introduction to Spectroscopy 3rd Ed., Pavia, Lampman, Kriz; Saunders Publishing, 2001.
Spectrometric Identification of Organic Compounds 5th Ed., Silverstein, Bassler, Morrill; Wiley, 1991.
Basic one- and two-dimensional NMR Spectroscopy, Horst, Weinheim, 2005.
NMR - from spectra to structures: an experimental approach, Mitchell and Costisella, Springer, 2004.
Structure elucidation by modern NMR: A workbook, Duddeck, Dietrich, Toth, Springer, 1998.

Other References and Texts:

Organic Structure Analysis, Crews, Rodríguez, Jaspars; Oxford Press, 1998
Spectrometric Identification of Organic Compounds 6th Ed., Silverstein, Bassler, Morrill; Wiley, 1998.
ABCs of FT-NMR, Roberts, University Science Books, 2000.

INTRODUCTION: This course is designed to provide a theoretical and practical working knowledge of modern spectroscopic techniques as applied to the elucidation of the structure of organic compounds. Mass spectroscopy, infrared spectroscopy, and NMR spectroscopy will be covered. If time permits, we will discuss Raman and UV spectroscopy. You are expected to have a solid understanding of physical organic chemistry and organic structure.

GRADING: Homework (25%); Term Paper (15%) Midterm exam (20%); Final exam (40%). Grades will be assigned as follows (subject to change): A 85-100%; B 70-84%; C 57-69%; D 45-56%; F <45%.

HOMEWORK: Homework problems will be given periodically throughout the course and must be completed by the date assigned. A grade reduction of 10% per day will be applied to any late homework.

TERM PAPER: A term paper based on the current literature will be due toward the end of the spring semester. May 1 will be the last day term papers will be accepted. A list of potential topics to choose from will be made available. Your term paper should be at least 4-5 pages and not more than 10 pages. The important thing is that it is long enough to adequately describe your subject in terms that the others in this course would understand. The idea is to learn something new that wasn't covered in the course. These papers will be distributed to everyone in the class, so please keep that in mind when writing them.

Special Needs: Any students who need special accommodations for learning or who have special needs are invited to share these concerns or requests with the instructor as soon as possible.

Academic Responsibility: It is assumed that students at NDSU have the integrity to complete examinations on their own. I will provide an examination environment that discourages temptation otherwise. Any student who is found to have acted dishonestly on an exam will receive an F for the course. The policy applied is that of the Code of Academic Responsibility and Conduct as outlined in NDSU University Senate Policy, Section 335: Code of Academic Responsibility and Conduct (http://www.ndsu.nodak.edu/policy/335.htm).

Tentative Class Schedule

Date	Topic
Jan 9/14	Introduction and Basics of NMR Spectroscopy
Jan 16/23	NMR Spin Coupling and Multiplet Analysis
Jan 28/30	Multiplet Analysis and Multipulse NMR
Feb 4	NMR Stereochemistry
Feb 6	**MIDTERM EXAM**
Feb 11/13	NMR Practical Considerations and 2D NMR
Feb 20/25	Mass Spectrometry
Feb 27/Mar 6	Infrared Spectroscopy
Mar 18/20	UV Spectroscopy and problems
TBA*	**FINAL EXAM**

HOLIDAYS

Jan 21 - MLK
Feb 18 - President's Day
Mar 4 - CPR Conference
Mar 11-15 - Spring Break