CH4412
Spring Semester 2013

Instructor: Dr. Dallas K. Bates  Office: ChemSci 620-A
e-mail: dbates@mtu.edu
Office Hours: My schedule allows me to accommodate most students’ schedules. If you want to discuss class issues, just stop by my office or email for a meeting time.

Text(s): Organic Structure Analysis [2nd Edition]
Phillip Crews, Jaime Rodriguez and Marcel Jaspars
{Good textbook, but class notes maybe sufficient}

Software: (freeware), nmrsm (NMR spectrum simulator)
ChemDraw (Mich Tech sitelicense)
Aldrich/ACD NMR database

CH4412 is designed to make you proficient at interpretation of organic spectral data and, as such, is very problem-solving oriented. Little emphasis is placed on instrument theory, operation or design. This course is not a course to provide training for hands-on operation of chemistry instrumentation. The ‘laboratory” time is used primarily for group and individual problem-solving exercises. If you wish to learn to use any departmental equipment, please contact me to arrange training independent of class.

I assign reading in the textbook; I expect students to read the textbook (or at least the class notes I provide for each Chapter) and to be able to apply assigned material in problem solving.

All CH4412 course material and other information-including this course syllabus- is (or will be) posted on the course webpage: http://www.mtu.edu/chemistry/department/faculty/?fac=dbates
To download your own copy of ChemDraw, visit the web site below, enter your Mich Tech email address, and follow the instructions. To get started, click below:

TOPICS
Lecture material, homework problems and in-class group problem assignments will cover the following topics (in this order):

Introduction-Using Spectral and Analytical in Structural Analysis
Mass Spectroscopy
Infrared Spectroscopy
$^1$H NMR
$^{13}$C NMR
2D NMR techniques
GRADING:

Quizzes (8) 60%
Poster presentation/class participation* 10%
Final (comprehensive) 30%

* Class participation is required.

Typically, quizzes are given during the “Lab” session, but may be unannounced and given at any time. Please email me prior to missing a class stating the reason for your absence. Graded material is assigned “0” for unexcused absences.

Note: "Student work products (exams, essays, projects, etc.) may be used for purposes of university, program, or course assessment. All work used for assessment purposes will not include any individual student identification."

The Blue Book of Useful Spectroscopic Information

A hand-written (no exceptions) “Blue Book of Useful Spectroscopic Information” may be used on quizzes and the final exam. You may include any information in the blue book. This blue book is the ONLY source that may be used on tests and quizzes. All information in the blue book must be hand-written by the individual using it. You can add new material to your bluebook at anytime.

Posters

Poster presentations will be in class during the last lab session of the term. The poster project involves solving an assigned problem, preparing a poster showing how the spectroscopic data from the problem supports the structure you propose as the answer, and orally discussing the poster with other students and attending faculty during the presentations. I will discuss in class the poster format and answer any questions you have later in the term. Some examples of student spectroscopy posters are posted outside my office.

A friendly reminder or two:

Use of electronic devices (phones, i-pads, etc.) in class without express permission of the instructor is a violation of Mich Tech policy. Use of any electronic devices other than a calculator is not allowed in CH4412.

CH2420 is a prerequisite for CH4412. Rudimentary knowledge of general organic chemistry principles, including nomenclature, common functional names and structures, drawing mechanisms, important organic reactions and mechanisms are essential for success in CH4412.

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MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act. If you have a disability and need a reasonable accommodation for equal access to education or services at MTU, please call the Dean of Students Office 72212. For other concerns you may contact your academic advisor, department chair, or the Affirmative Action Office.
Assignments

<table>
<thead>
<tr>
<th>Week</th>
<th>reading</th>
<th>Problems*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chap 1 (19 pages)</td>
<td>1.5 - 1.7, 1.10</td>
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<tr>
<td>2</td>
<td>See MS lecture notes (page 1)</td>
<td>See MS lecture notes (page 1)</td>
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* I will ask for volunteers to present solutions to problems on the blackboard

Curiosity – A scientist’s best friend