

COURSE OUTLINE CHEM 731 Fall 2011

University of Waterloo

Term and Year of Offering: Fall 2011

Course Number and Title: CHEM 731, Biomolecular NMR Spectroscopy

Lecture Times, Building and Room Number: T, 7:00pm to 9:20pm; C2-278

Instructor's Name, Office Location, Office Hours, Contact: Thorsten Dieckmann, ESC 227, by appointment, tdieckma@uwaterloo.ca; ext 35036

Course Description:

This course covers the basics of biomolecular NMR spectroscopy and its application to protein structure determination.

Among the topics discussed are:

- Basics of NMR spectroscopy
- Spectrometer hardware
- Types of pulse sequences and their application
- Extracting NMR parameters from spectra
- Types and use of software for the analysis of NMR spectra and structure calculation/analysis
- Preparation and writing of a biomolecular NMR based research paper.

Course Objectives:

- ❖ Students will develop an understanding of biomolecular NMR spectroscopy and its applications.
- ❖ Students will develop an up-to-date knowledge of methods used to derive protein structures from NMR data in both, theory and practice.
- ❖ Students will gather experience in analyzing NMR data and preparing the results for publication.

Required Text: All material needed will be provided in class and via the class website. This includes software and data needed for the practical portion of the course. Access to a computer (in class, at home or in a campus computer lab is required to complete the project).

Evaluation: The course grade will be based on one 50 minute mid-term examination at the end of the 5 week basic section (Tuesday, October 18 during regular class hours) and a term paper (Due on December 6, 2011). The breakdown is as follows:

Mid-term Examination	40%	<u>Thursday, October 18 during regular class hours</u>
Term Paper	60%	<u>Tuesday, December 6</u>

Rules for Group Work in Lab Assignments: All work on the term paper needs to be performed by each student on their own.

Late Submissions: Late submission of the term paper will be accepted until December 9. Late submissions will have 25% of the mark deducted for each day or part of a day that the assignment is late. Assignments submitted after December 6 will receive a mark of 0%.

Academic Integrity, Grievance, Discipline, Appeals and Note for Students with Disabilities: see www.uwaterloo.ca/accountability/documents/courseoutlinestmts.pdf

The text for this web site is listed below:

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check www.uwaterloo.ca/academicintegrity/ for more information.]

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity [check www.uwaterloo.ca/academicintegrity/] to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties check Guidelines for the Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

Appeals: A decision made or penalty imposed under Policy 70 (Student Petitions and Grievances) (other than a petition) or Policy 71 (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

Note for Students with Disabilities: The Office for persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

Thorsten Dieckmann
August 3, 2011