

COURSE OUTLINE CHEM 731 Fall 2017

University of Waterloo

Term and Year of Offering: Fall 2017

Course Number and Title: CHEM 731, Structure and Function of Nucleic Acids

Lecture Times, Building and Room Number: TTh 1-2:30; ML

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

Course Description:

This course covers advanced topics in structure and function of nucleic acids.

Among the topics discussed are:

- Basic principles of DNA and RNA chemistry, biochemistry and structure
- Analytical methods used for the study of nucleic acids
- Biochemical methods for the study of nucleic acids including SELEX
- Structure determination of nucleic acids by NMR spectroscopy
- Nucleic acids in medical applications
- Nucleic acid nanotechnology
- Nucleic acids in molecular biology

Course Objectives:

- ❖ Students will develop an advanced understanding of nucleic acid structure and function.
- ❖ Students will develop an up-to-date knowledge of nucleic acid applications in medicine, biochemical analytics and molecular biology
- ❖ Students will gather experience in analyzing recent literature and in presenting the results of their analysis in written and oral form.

Required Text: All material needed will be provided in class and via the class website.

Evaluation: The course grade will be based on a midterm exam and a term project (mini lecture, lecture notes, exam question).

Midterm exam	40%	
Term Project	60%	(mini lecture 30%, lecture notes 10%, exam question 20%)

Rules for Group Work in 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 the last day of classes. 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 the last day of classes 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
June 1, 2017