



**Course Outline**

**UNIVERSITY STUDIES**

**CHEMISTRY 263**  
Organic Chemistry II  
**Winter 2014**

**3 CREDITS**  
**3 hours lecture, 3 hours laboratory**

**INSTRUCTOR: DR. SORIN NITA**

**INSTRUCTOR:** DR. SORIN NITA  
**PHONE NUMBER:** (780) 715-3924  
**E-MAIL:** sorin.nita@keyano.ca  
**OFFICE NUMBER:** S209F

**OFFICE HOURS:**

Monday	2:00 PM – 4:00 PM
Tuesday	10:00 AM – 12:00 PM
Friday	10:00 AM – 11:00 AM

**HOURS OF INSTRUCTION:**

Monday	4:00 PM – 4:50 AM	Room S214
Tuesday	9:00 AM – 9:50 AM	Room S212
Friday	11:00 AM – 11:50 AM	Room S216

**LABORATORIES:**

Thursday	2:00 PM – 4:50 PM	Room 236
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**COURSE DESCRIPTION:**

Chemistry 263 continues the study of molecular structure and reactivity of organic compounds with oxygen containing functional groups, conjugated dienes and aromatic compounds, amines and molecules of biological importance. The course includes an introduction to the use of organic spectroscopy in the determination of molecular structure.

**PRE-REQUISITE(S):**

Chemistry 164 or 261.

**COURSE OUTCOMES:**

The student will be able to:

1. Perform many organic chemistry laboratory techniques, such as refluxing, distillation, recrystallization, melting point determination, and use safety procedures to ensure a safe working environment for all students
2. Understand organic spectroscopy (with an emphasis on proton NMR) and correlate organic structures with spectroscopic features
3. Create organic synthesis pathways of obtaining one compound from another, by applying a logical understanding of organic reactions and mechanisms
4. Understand important organic chemistry mechanisms, such as allylic/benzylic radicalic substitution, electrophilic aromatic substitution, nucleophilic addition for carbonylic compounds (aldehydes and ketones), nucleophilic addition - elimination for carboxylic acids and derivatives
5. Correlate typical mechanisms that appear in organic chemistry with the reactivity of biochemical compounds (carbohydrates, lipids, and proteins)

**REQUIRED RESOURCES:**

1. **Organic Chemistry**; Solomons, T.W.G.; Fryhle, C.B.; Snyder, S.A.; John Wiley & Sons, Inc., 2014 (11<sup>th</sup> edition). *9<sup>th</sup> and 10<sup>th</sup> editions are also acceptable.*
2. **Chemistry 263 Laboratory Manual**; Keyano College (2013/2014 edition). *The old editions of the lab manual are not acceptable.*
3. **Student Lab Notebook with Permanent Binding**; Plymouth, Michigan: Hayden-McNeil, LLC
4. **Molecular Visions Molecular Model Kit (Darling)**, on sale in the bookstore. In case you wish to share costs, one half of a Molecular visions kit will give enough models. Alternate models are acceptable as long as they give ball-&-stick models that can be rotated about the bonds, with plenty of 109° and 120° bond angles.
5. A non-programmable scientific calculator (**Sharp EL-531**, used for exams, is recommended).
6. Extra long lab coat.

**TOPICS TO BE COVERED:****Please Note:**

This course outline may be modified to facilitate unforeseen time constraints. Date and time allotted to each topic is subject to change.

**1. Organic Spectroscopy****textbook chapters**

The electromagnetic spectrum, Ultraviolet-Visible spectroscopy	9.1, 13.9
Infrared spectroscopy, Detecting functional groups	2.16
Nuclear Magnetic Resonance, Chemical shift	9.2-9.12
NMR in aromatic compounds	14.7B, 14.11A
Mass Spectrometry, Fragmentation	9.13-9.16
Spectra for aldehydes, ketones, carboxylic acids, amines	16.13, 18.2J, 20.12B

**2. Conjugated dienes, aromatic compounds.**

Resonance, Conjugated unsaturated systems	1.12, 13.1-13.11
Aromatic compounds	14.1-14.9
Reactions of aromatic compounds	15.1-15.15
Reactions of diazonium salts	20.7B, 20.8, 20.9
Electrophilic aromatic substitutions	20.5B, 21.8, 21.11

**3. Organic compounds with carbonyl and carboxyl functional groups**

Alcohols from carbonyl compounds	12.1-12.8, 12.10
Aldehydes and Ketones I: Nucleophilic addition	16.1-16.14
Aldehydes and Ketones II: Enols and enolates	17.1-17.6
Carboxylic acids and their derivatives	18.1-18.11
Synthesis and reactions of $\beta$ -dicarbonyl compounds	19.1-19.4

**4. Amines, Carbohydrates, Amino acids and Proteins.**

Amines	20.1-20.12
Carbohydrates	22.1-22.8
Amino acids and proteins	24.1-24.10, 24.12
Nucleic acids and protein synthesis	25.1-25.5

**MOODLE**

Go to <http://ilearn.keyano.ca>

This course is supported through Moodle. Assignments, readings and handouts will be posted on Moodle. Login information will be provided by your instructor. For further instructions please see the Moodle handout.

**EVALUATION:**

Assignment	Percentage	Due Date
<b>Problem Sets</b>	<b>10%</b>	N/A
<b>Lab Reports</b>	<b>25%</b>	N/A
<b>Midterm</b>	<b>25%</b>	Thursday, March 6 <sup>th</sup> , 2014
<b>Final Examination</b>	<b>40%</b>	<i>During the final examination period</i>

**GRADING SYSTEM:**

Letter Grade	Description	Grade Points
A+		4
A	Excellent	4
A-		3.7
B+		3.3
B	Good	3
B-		2.7
C+		2.3
C	Satisfactory	2
C-		1.7
D+		1.3
D	Minimal Pass	1
F	Failure	0

Students intending to transfer to other institutions require a ‘C-’ as a minimum grade. Transfer information on each course is available at the [Alberta Council on Admission and Transfers](#).

In the chemical laboratory, students **must** use a lab coat and a pair of safety goggles (if you normally wear contact lenses, you should switch to regular glasses for lab work). *You should never wear contact lenses in a lab.*

Students who do not complete all the required work should not expect to pass the course. Students should consult:

[http://www.keyano.ca/current\\_students/examinations/index.htm](http://www.keyano.ca/current_students/examinations/index.htm)

**IMPORTANT DATES:**

January 17 <sup>th</sup> , 2014	Courses dropped after this date will be designated “W”. (A withdrawal (W) is not reflected in your GPA)
March 7 <sup>th</sup> , 2014	Courses dropped after this date will be designated “WF”. (A withdrawal failure (WF) counts as a 0 in your GPA)
April 17 <sup>th</sup> , 2014	Last day of classes
April 22 <sup>nd</sup> -30 <sup>th</sup> , 2014	Final Exams

**COLLEGE POLICIES****Equality, Equity and Respect**

The Keyano College is committed to providing an environment of equality, equity and respect for all people within the College community. All members of this community are considered partners in developing teaching and learning contexts that are welcoming to all. Faculty, staff, and students are encouraged to use inclusive language to create a classroom atmosphere in which

students' experiences and views are treated with equal respect and valued in relation to their gender, ethnic and cultural background, and sexual orientation.

*Students should consult:*

[http://www.keyano.ca/Committees/IRA/Individual\\_Rights\\_Policy.asp](http://www.keyano.ca/Committees/IRA/Individual_Rights_Policy.asp)

### **Plagiarism and Cheating**

Every student expects to be treated and evaluated fairly in a course. Plagiarism and cheating robs everyone of this right.

No student may submit words, ideas or data of another student or person as his or her own in any writing, project, assignment, quiz, electronic presentation, exam etc. Any work used that is not the student's own must be clearly cited as belonging to someone else. There are penalties for using other's work and not citing it. The Student's Rights & Responsibilities document clearly outlines these penalties and the appeal process.

- No learner can obtain information from another student during an exam.
- No learner can bring unauthorized information (paper or electronic) into an exam or quiz.
- No student can submit work done in another course for grading in this course without the written prior approval of the course instructor.
- No student can submit copyright protected or commercially produced materials as part or all of an assignment without proper citation & permission.

### **Student Rights & Responsibilities**

Students should consult the Keyano College Credit Calendar or online at:

<http://www.keyano.ca/Media/Collections/Calendars/Keyano.Calendar1112-10-full.pdf>

### **Specialized Supports and Duty to Accommodate**

*Disability Support Services: Learner Assistance Program*

If you have a documented disability or you think that you would benefit from some assistance from a Disabilities Counsellor, please call or visit the Disability Supports Office 780-792-5608 to book an appointment (across from the library). Services and accommodations are intended to assist you in your program of study, while maintaining the academic standards of Keyano College. We can be of assistance to you in disclosing your disability to your instructor, providing accommodations, and supporting your overall success at Keyano College.

*Specialized Supports and Duty to Accommodate*

Specialized Support and Duty to Accommodate are aligned with the office of Disability Support Services: Learner Assistance Program (LAP) guided by federal and provincial human rights legislation, and defined by a number of Keyano College policies. Keyano College is obligated by legislation to provide disability-related accommodations to students with identified disabilities to the point of undue hardship.

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**3 CREDITS  
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**Dr. Sorin Nita, Instructor**

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**Date**

**Reviewed and approved by:**

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**Louis Dingley, Chairperson**

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**Date**

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**Guy Harmer, Dean**

\_\_\_\_\_  
**Date**