Course Outline

UNIVERSITY STUDIES

CHEMISTRY 261
Organic Chemistry I
Winter 2013

3 CREDITS
3 hours lecture, 3 hours laboratory

INSTRUCTOR: DR. SORIN NITA
CHEM 261 – Organic Chemistry I

INSTRUCTOR: DR. SORIN NITA

PHONE NUMBER: (780) 715-3924

E-MAIL: sorin.nita@keyano.ca

OFFICE NUMBER: S209F

OFFICE HOURS:
- Tuesday 9:00 AM – 12:00 PM
- Wednesday 10:00 AM – 12:00 PM

HOURS OF INSTRUCTION:
- Wednesday 8:00 AM – 9:50 AM Room 228
- Friday 1:00 PM – 1:50 PM Room S110

LABORATORIES:
- Monday 9:00 AM – 11:50 AM Room 236

COURSE DESCRIPTION:
Organic Chemistry I introduces the correlation of structure and chemical bonding in carbon compounds with the physical properties and chemical reactivity of organic molecules. With discussion based on selected functional groups, the course will introduce stereochemistry, three dimensional structure, and reaction mechanisms, especially the mechanisms of addition to double bonds, nucleophilic substitution and elimination reactions. Functional groups covered will emphasize hydrocarbons and derivatives that contain halogens, oxygen, sulphur, and the hydroxyl group.

PRE-REQUISITE(S):
Chemistry 101 or 103.

COURSE OUTCOMES:
The student will be able to:
1. Perform typical organic chemistry experiments, with an emphasis on laboratory safety
2. Explain the hybridization of carbon atoms in different hydrocarbons, and correlate the hybridization with their chemical properties
3. Employ IUPAC nomenclature rules to name hydrocarbons and properly identify their stereoisomers and diastereoisomers
4. Use molecular model kits for understanding the conformations of alkanes and cycloalkanes, as well as the stereochemistry in some important organic reactions, such as the bromination of cis or trans stilbene
5. Understand important organic chemistry mechanisms, such as radicalic substitution for alkanes, electrophilic addition for alkenes, and nucleophilic substitution/elimination (SN1, SN2, E1, E2) for alkyl halides and alcohols

REQUIRED RESOURCES:

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. BASIS OF ORGANIC CHEMISTRY  
   *textbook chapters*
   
   Molecular structure and bonding in organic chemistry. 1.1-1.18
   Functional groups; nomenclature. 2.1-2.17
   Reactivity in organic chemistry; Acids and Bases. 3.1-3.16

2. ISOMERS
   
   Alkanes; Isomers; and Conformations 4.1-4.20
   Stereochemistry: Chiral Molecules 5.1-5.18

3. CHEMISTRY OF HYDROCARBONS
   
   Akenes and Alkynes: Addition of Halogens; Hydrogenation 8.1-8.20
   Alkenes and Alkynes: Preparation by Elimination reactions; Addition of HX; Oxidations 7.1-7.16
   Nucleophilic substitution: reactions of alkyl halides and alcohols. 6.1-6.19
   Other reactions of alcohols, alkenes and alkynes 11.1-11.17
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:

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<th>Assignment</th>
<th>Percentage</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>10%</td>
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<tr>
<td>Lab Reports</td>
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<tr>
<td>Midterm</td>
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<td>Monday, March 4th, 2013</td>
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<tr>
<td>Final Examination</td>
<td>45%</td>
<td>During the final examination period</td>
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GRADING SYSTEM:

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<tr>
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<td>F</td>
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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
IMPORTANT DATES:

<table>
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<tr>
<td>January 18th, 2013</td>
<td>Courses dropped after this date will be designated “W”.</td>
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<tr>
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<td>(A withdrawal (W) is not reflected in your GPA)</td>
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<tr>
<td>March 8th, 2013</td>
<td>Courses dropped after this date will be designated “WF”.</td>
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<tr>
<td></td>
<td>(A withdrawal failure (WF) counts as a 0 in your GPA)</td>
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<tr>
<td>April 19th, 2013</td>
<td>Last day of classes</td>
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<td>April 22nd-30th, 2013</td>
<td>Final Exams</td>
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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

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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CHEMISTRY 261
Organic Chemistry I
Winter 2013

3 CREDITS
3 hours lecture, 3 hours laboratory

Dr. Sorin Nita, Instructor
Date

Reviewed and approved by:

Louis Dingley, Chairperson
Date

Guy Harmer, Dean
Date