IONA
School of Arts & Science

Organic Chemistry I **Department of Chemistry**
CHM 209 A **Fall 2010**
Meeting TU TH F 11:00-11:52 AM
Cornelia Hall C-108

Instructor: Dr. Terrence Gavin
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Office hours: M W 1:00-1:52 PM; Tu 12:00-12:52 PM

Course Description:
Organic Chemistry is the study of the structure and reactivity of the compounds of carbon. Specifically, the structural theory of organic chemistry and the experimental validation of its concepts will be studied. In addition, the descriptive chemistry of alkanes, alkenes, alkynes, alkyl halides, alcohols, amines, ethers, epoxides and thiols will also be considered. *3 credits*.
Prerequisite: CHM 109-110 General Chemistry
Scheduled Every Fall Semester

Required Texts/Source Materials/Readings and References:
Bruice, Paula Y., Organic Chemistry 6th Ed., Prentice Hall, Inc., Upper Saddle River, NJ (2010).

Required Software:
Molecular Modeling (available on Iona network, tba).

Introduction
The goal of this course is to enable students to gain appropriate level understanding of the structural theory of organic chemistry and to recognize the experimental validation of this theory through the spectral properties and reactivity of organic compounds. The course also functions to prepare students for further study in chemistry and molecular biology and is required for all Chemistry, Biochemistry and Biology majors and any student interested in medical/dental pre-professional training. Successful completion of Organic Chemistry I is a prerequisite for Organic Chemistry II (CHM 210).

Learning Goals/Objectives: *Chemistry Core Learning Goals*
S1 Develop the habits and skills of critical thinking;
S2 Develop student-centered, inquiry based learning environment;
S3 Instill an appreciation of the role of science in today's world;
S4 Prepare students to become lifelong learners and decision makers adaptable to new information technologies;
S5 Provide the critical background required for mastery in a particular scientific discipline;
S6 Prepare students to enter career positions in industry, to pursue graduate studies, to enter professional schools, to teach science;
S7 To bring students to an understanding of the nature of scientific knowledge and appropriate application of scientific concepts, principles, laws and theories;
S8 Enable students to utilize the process of science in solving problems, making decisions and furthering their understanding of nature and technology;

S9 Provide students with an understanding and appreciation of the joint enterprises of science and technology, practical applications of science and the interrelationship between science and society;
S10 Facilitate processes which enable students to communicate scientific concepts in a logical fashion.

Assessment Criteria

Grading

Exams (two, 78 min. each; 50%)	85% = A
Quizzes (unannounced, 10%)	77-84 = B+
Assignments (0-10%)	70-77 = B
Final Exam (30-40%)	65-69 = C+
	55-64 = C
	45-54 = D
	Below 45 = F

Students are required to take all examinations. Ordinarily, a student who misses an exam will be given a grade of I or N for the course, unless an F grade is warranted. Students receiving a grade of I or N may not be eligible to register for CHM 210 (Organic Chemistry II) in the following semester. **Assignments** will be posted on the course Blackboard site (all students will be notified of each posting via Email) and will be counted toward the overall grade (5-10%, depending on the actual number of assignments). For students who miss an assignment, or fail to hand an assignment in on time, the Final Exam may count for 40% of the overall grade.

Tools

Readings from the textbook and the graded exams based on these reading are primarily designed to meet Learning Goals S5 and S6 but certainly encompass S1, S2, S7 & S8. Problem assignments from the textbook and graded Assignments are specifically designed with these latter four goals in mind. Achievement of the other stated learning goals comes from reading the textbook but will also be a function of the lecture itself including individual student participation. That is, all students are strongly encouraged to participate in lecture sessions by bringing the textbook to class, asking questions or making comments as requested by the instructor or appropriate to the classroom situation.

Course Outline: **Topics, Reading and Problem Assignments, Exam Schedule**

I. Bonding and Structure in Organic Chemistry/ Nomenclature/ Thermodynamics and Kinetics/ Stereochemistry/ Reactivity of Alkenes and Alkynes; Bruice Ch. **1**, **2**, **3, 4, 5, 6**. Problems Ch **1:** 71-88, 90-92, 100-103; Ch **2:** 48-50a, 61, 63-67, 71, 74; Ch **3:** 36-42, 45-52, 54, 55, 57; Ch **4:** 38-48, 50, 52-54, 56, 61; Ch **5:** 62, 63a,b, 65, 67-73, 75-78, 81; Ch **6:** 25-31, 33, 36, 39, 42, 46.

EXAM I (tba)

II. Delocalized Bonding/ MO Theory / Diels-Alder Reaction/ Reactivity of Alkanes/ Structure Determination via UV, Visible, IR, NMR and Mass Spectroscopy; Bruice Ch **7, 12** *sec. 1-5, 7-10***, 13, 14.** Problems Ch 7: 48-56, 58, 62, 64, 65, 71, 75, 81; 12: 22-26, 32, 42; **13:** all; **14:** all.

EXAM II (tba)

III. Substitution and Elimination Reactions/ Functional Group Reactivity (Alkyl Halides, Alcohols,

Ethers, Epoxides, Sulfur Compounds)/ Organometallic Compounds; Bruice Ch. **8, 9, 10, 11.** Problems Ch **8**: 36-49, 52-54; Ch **9:** 32-44, 48, 52, 54, 55; Ch **10**: 35-40, 45, 55, 57, 62; Ch **11:** 22, 24, 25-30.

FINAL EXAM (tba. See Final Exam Schedule)

Note: *CHM 209 A will meet on Tuesday, October 12 as indicated on Fall 2010 Undergraduate Day Schedule.*

College Policy for all courses and students: (full explanations of policy may be found in the College Catalog)

Plagiarism: Is the unauthorized use or close imitation of the language and thoughts of another author/person and the representation of them as one's own original work. Iona College policy stipulates that students may be failed for the assignment or course, with no option for resubmission or re-grading of said assignment. A second instance of plagiarism may result in dismissal from the College.

Attendance: All students are required to attend all classes. Iona has an attendance policy for which all students are accountable. While class absence may be explained it is never excused. Professors may weigh class absence in the class grade as they see fit. Failure to attend class may result in a failure of the class for attendance (FA), when the student has missed 20% or more of the total class meetings. The FA grade weighs as an F would in the final official transcript.

Course and Teacher Evaluation (CTE): Iona College now uses an on-line CTE system. This system is administered by an outside company and all of the data is collected confidentially. No student name or information will be linked to any feedback received by the instructor. The information collected will be compiled in aggregate form by the agency and distributed back to the Iona administration and faculty, with select information made available to students who complete the CTE. Your feedback in this process is an essential part of improving our course offerings and instructional effectiveness. We want and value your point of view.*

NOTE* You will receive several emails at your Iona email account about how and when the CTE will be administered with instructions how to proceed.