

SOUTHERN CONNECTICUT STATE UNIVERSITY

Course Number and Title **CHE 261 Organic Chemistry II**
Fall 2008

Name: **Dr. Karatjas**
Office **JE 327**
Phone: **392-6271**
E-mail: **karatjasa2@southernct.edu**

Office Hours:
M: 4:00 PM - 5:00 PM
W: 1:00 PM - 3:00 PM
R: 11:00 AM – 1:00 PM

COURSE NUMBER 261 **CREDIT HOURS:** 4 **PREREQUISITES:** CHE 260

COURSE TITLE: **Organic Chemistry II**

COURSE DESCRIPTION:

The course is a continuation from the first semester course (CHE 260). This course will build on the knowledge gained in that course, and continue with learning additional reactions, as well as detailed mechanisms for additional classes of compounds. In addition, these concepts will be applied through the laboratory portion of the course. The laboratory portion will continue to teach proper and safe techniques, as well as emphasize the development of scientific writing skills using formal lab reports. Furthermore, the use of current organic instrumentation such as nuclear magnetic resonance spectroscopy, infrared spectroscopy, gas chromatography, mass spectrometry, and ultra violet spectroscopy will be a major focus of the laboratory component, as well as the lecture component.

COURSE'S CONTRIBUTION:

This is the second of a two course sequence in organic chemistry that chemistry and pre-med students are required to take. The course will emphasize active understanding of the material and not just rote memorization. The other component of learning that will be emphasized is problem solving. Applications of certain concepts will be related to everyday uses.

LEARNER OUTCOMES & ASSESSMENT

- Learn the reactivity and use of alcohols and ethers. (NSTA 1, 5; INTASC 1)
- Continued learning of acquisition and interpretation of various types of spectra important to organic chemistry. These may include but are not limited to NMR (nuclear magnetic resonance spectroscopy), IR (infrared spectroscopy), and mass spectrometry. (INTASC 1, 4; NSTA 1, 3, 4, 5; CCCT 1.4, 2.6)
 - Continue to apply the concepts of conformational analysis and stereochemistry and their importance to reactions in organic chemistry. (INTASC 3, 4; NSTA 1, 3, 4, 5; CCCT 1.2, 2.2, 2.5)
 - Understand the chemistry and nomenclature of carbonyl containing compounds.. (NSTA 1; INTASC 1; CCCT 1.4)
 - Learn about aromatic systems and their reactivity. (NSTA 1; INTASC 1)
 - Learn about amines and their reactivity. (NSTA 1; INTASC 1)
 - Continue to develop the organic laboratory techniques such as recrystallization, melting points, extraction, distillation, and chromatography learned in CHE 260. (NSTA 1, 2, 3, 6, 9; INTASC 1; CCCT 1.3, 2.2, 2.4, 2.5, 3.6)
 - Carry out some of the reactions from the lecture component of the course in the laboratory. (NSTA 1, 2, 3, 6, 9; INTASC 1; CCCT 1.3, 2.2, 2.4, 2.5, 3.6)
 - Continue development of proper scientific writing style through the use of formal laboratory reports. (NSTA 1, 2, 3, 4, 6, 8, 9, 10; CCCT 1.1, 1.3, 3.4)
 - Continue to learn safe laboratory practices in working with organic chemicals. (NSTA 9; CCCT 3.2)

MODES OF LEARNING

Lectures, demonstrations, hands-on instrumental use, quizzes, laboratory experiments.

COURSE CONTENT OUTLINE	Topic	Assigned Reading
Lectures 1 & 2	Alcohols and Phenols	Chapter 17
Lectures 3 & 4	Ethers and Epoxides; Thiols and Sulfates	Chapter 18
Lectures 5 – 7	Aldehydes and Ketones: Nucleophilic Addition	Chapter 19
Lecture 8	Carboxylic Acids and Nitriles	Chapter 20
Lecture 9	EXAM 1	
Lecture 10 – 11	Carboxylic Acid Derivatives	Chapter 21
Lectures 12 – 13	α -Substitution of Carbonyl Compounds	Chapter 22
Lectures 14 – 17	Carbonyl Condensation Reactions	Chapter 23
Lectures 18 – 19	Conjugate Compounds and Ultraviolet Spectroscopy	Chapter 14
Lecture 20	EXAM 2	
Lectures 21 – 22	Benzene and Aromaticity	Chapter 15
Lectures 23 – 25	Electrophilic Aromatic Substitution	Chapter 16
Lectures 26 – 27	Amines and Heterocycles	Chapter 24
Lecture 28	EXAM 3	
Lectures 29 – 31	Pericyclic Reactions	Chapter 30

REQUIRED TEXTS

McMurry, J. E. *Organic Chemistry, 7th Edition*; Cengage: 2008. (ISBN: 0495118370)

Pavia, D.; Lampman, G.; Kriz, G.; Engel, R. *Introduction to Organic Laboratory Techniques: A Microscale Approach*. Cengage: 2006 (ISBN: 0495837806)

COURSE REQUIREMENTS

Late/Missed Work: Late exams will not be accepted for grading unless accompanied by a doctor's note.

Attendance: Regular attendance of scheduled classes and laboratory sessions is necessary for academic success. Although I do not take attendance in lecture, lecture attendance is strongly recommended. Lab attendance is required.

EVALUATION CRITERIA

Students are required to complete all laboratory experiments. The lab experiments reinforce many of the chemical concepts covered in lecture and students are expected to apply the concepts to the laboratory experiments. Please remember that to receive a passing grade in CHE 260, you **must pass the laboratory portion** of the course. A passing grade for the laboratory portion of the course is 60%.

Exams (3 in class exams):	50% total
Final exam (Cumulative):	25%
Laboratory Grade:	25%

Final grades will be assigned by the following scale:

A⁺ = 96 – 100%
A = 91 – 95%

A⁻ = 86 – 90%
 B⁺ = 82 – 85%
 B = 78 – 81%
 B⁻ = 74 – 77%
 C⁺ = 70 – 73%
 C = 66 – 69%
 C⁻ = 62 – 65%
 D⁺ = 58 – 61%
 D = 54 – 57%
 D⁻ = 50 – 53%
 F = <50%

The instructor reserves the right to adjust the grading scales for class average at the end of the semester.

STANDARDS GUIDELINES

INTASC [Interstate New Teachers' Assessment & Support Consortium]	Professional Standards National Science Teacher's Association	CCCT {CONNECTICUT COMMON CORE OF TEACHING}
<p>Scholarship</p> <ol style="list-style-type: none"> 1. Knowledge of subject matter 2. Knowledge of human development & learning 3. Instruction adapted to meet diverse learners 4. Use of multiple instructional strategies & resources <p>Attitudes and Disposition</p> <ol style="list-style-type: none"> 5. Effective learning environment created 6. Effective communication 7. Lesson planning <p>Integrity</p> <ol style="list-style-type: none"> 9. Reflection and professional development <p>Leadership</p> <ol style="list-style-type: none"> 8. Assessment of student learning to improve teaching <p>Service</p> <ol style="list-style-type: none"> 10. Partnership with school and community 	<ol style="list-style-type: none"> 1. Content - Structure and interpret the concepts, ideas and relationships in science 2. Nature of Science - Define the values, beliefs and assumptions inherent to the creation of scientific knowledge within the scientific community 3. Inquiry - Formulating solvable problems, constructing knowledge from data, exchanging information for seeking solutions, developing relationships from empirical data 4. Context of Science - Relate science to daily life: technological, personal, social and cultural values. 5. Skills of Teaching - Science teaching actions, strategies and methodologies, interaction with students, effective organization and use of technology. 6. Curriculum - Extended framework of goals, plans, materials and resources for instruction. 7. Social Context - Social and community support network, relationship of science to needs and values of the community, involvement of people in the teaching of science. 8. Assessment - Alignment of goals, instruction and outcomes, evaluation of student learning. 9. Environment for Learning - 	<p>DEMONSTRATIONS OF KNOWLEDGE</p> <ol style="list-style-type: none"> 1.1 understanding of student learning & development 1.2 understanding of need for different learning approaches 1.3 proficiency in reading, writing and mathematics 1.4 understanding of central concepts & skills, tools of inquiry and structures of discipline(s) 1.5 knowledge of how to design and deliver instruction 1.6 recognition of need to vary instructional methods <p>APPLICATION OF KNOWLEDGE THROUGH</p> <ol style="list-style-type: none"> 2.1 instructional planning based upon knowledge of subject, students, curriculum & community 2.2 selection and/or creation of learning tasks that make subject meaningful for students 2.3 establishment and maintenance of appropriate behavior standards and creation of positive learning environment 2.4 creation of instructional opportunities supporting students' academic, social and personal development 2.5 use of verbal, nonverbal and media communication fostering individual and collaborative inquiry 2.6 employment of various instructional strategies in support of critical thinking, problem solving and skills demonstration 2.7 use of various assessment techniques to evaluate student learning & modify instruction

	<p>Physical spaces for learning, psychological and social environment, safety in science instruction.</p> <p>10. Professional Practice - Knowledge and participation in the professional community, ethical behavior, high quality of science instruction, working with new colleagues as they enter the profession.</p>	<p>DEMONSTRATION OF PROFESSIONAL RESPONSIBILITY THROUGH:</p> <p>3.1 professional conduct in accordance with the Code of Professional Responsibilities for Teachers 3.2 shared responsibility for student achievement and well-being 3.3 continuous self-evaluation regarding choices & actions on students and school community 3.4 commitment to professional growth 3.5 leadership in the school community 3.6 demonstrations of a commitment to students and a passion for improving the profession</p>
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TENTATIVE COURSE CALENDAR
See "Course Content Outline" above.

DISABILITY ACCOMMODATION STATEMENT

I believe in providing reasonable accommodations for students with documented disabilities on an individualized and flexible basis. If you are a student with a documented disability, the university's Disability Resource Center (DRC) determines appropriate accommodations through consultation with the student. Before you may receive accommodations in this class, you will need to make an appointment with the Disability Resource Center, located in EN C-105A. To speak with me about other concerns, such as medical emergencies or arrangements in case the building must be evacuated, please make an appointment as soon as possible.