

CHEMISTRY 261 (01, 02)

ORGANIC CHEMISTRY II

"Welcome Back to the Class You Love!!!"

Summer 2006 / Session B / July 3 – August 4

10:00 - 11:45 AM MTuWTh – Morrill Hall 10 (MO 10)

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COURSE DESCRIPTION

You are here to keep learning the subtle science and exact art of potion- and elixir-making (a.k.a. organic chemistry). In that perspective, **CHEMISTRY 261** is the second of a two-part Introductory Organic Chemistry lecture & laboratory course that focuses on the study of the chemistry of carbon-containing compounds. We will continue to investigate the transformation of the major functional groups with the same –actually more!– emphasis than last session on reaction mechanisms and stereochemistry –oh yes we will! There will be also a –very!– special emphasis on the development of synthetic schemes. As there is little foolish wand-waving here, many of you will hardly believe this is magic; but it is!

The laboratory component of this course will rely heavily on the numerous techniques which were learned during the previous session in order to prepare, isolate, purify, and analyze the products of a wide variety of organic reactions. **Spectroscopy**, a means to gather information about the structure of molecules by making physical measurements on compounds, will also be systematically used. In that respect:

It is absolutely required that EVERY student registered in CHE 261 has a working understanding of Organic Spectroscopy (e.g., ^1H & ^{13}C NMR, IR, MS, and UV-Vis).

Finally, **it is expected that EVERY student enrolled in CHE 261 has a working understanding of the material covered in CHE 120 & CHE 121 (or the equivalent) and in CHE 260.**

Contrary to conventional belief, organic chemistry is not all memorization.

- **Avoid falling behind in the READING** –for those of you reading the book!
- **Attend most of the LECTURES, if not all.**

Remember, it's Summer Organic! We meet 8 hours a week in the classroom!

- **REVIEW the material after each lecture.**

Remember, it's Summer Organic! It goes fast, very fast! So, don't fall behind!

CHEMISTRY 261 FORMAT

- **Hourly Exams.** *450 Points (~55% of Total Points)*

THREE (3) hourly exams will be administered, and each **hourly exam** will be worth *150 Points*. Also, **each hourly exam** will contain some problems chosen from the list of "Strongly Suggested Problems" (SSP) to do given in class, and taken from our textbook. The **THREE (3) hourly exams** will be administered during **THURSDAY** class time according to the schedule indicated below.

Exam #1 THURSDAY, July 13, 2006

Exam #2 THURSDAY, July 20, 2006

Exam #3 THURSDAY, July 27, 2006

Hourly Exams MUST be taken at the indicated time. As a rule, MAKE-UP EXAMS WILL NOT BE GIVEN; anyway, it's Summer Organic, there is NO time for Make-Up Exams! And I mean it! However, if you know in advance that you will not be able to sit for an exam –you better have a rock-solid reason!–, PLEASE SEE ME as soon as possible.

Exam papers will be returned during **MONDAY** lecture time, and any **request for a re-grade** will have to be made within a 48-HOUR period following the return date.

- **Non-Cumulative Final Exam.** *200 Points (~24% of Total Points)*

The **Final Exam** will be worth a total of *200 Points* and will not be cumulative. It will be the equivalent of a **fourth (4th) Hourly Exam**, and it will be administered **during the regularly scheduled last day of school of Summer 2006 / Session B.**

FRIDAY, AUGUST 4, 2006: 10:00 AM – 12 NOON

- **Laboratory.** *175 Points (~21% of Total Points)*

Laboratory sessions are discussed in more detail in a separate **laboratory syllabus** (CHE 261L).

The lab points will be distributed on the basis of the following criteria:

– Laboratory Reports.

There will be six (6) laboratory reports for a total of eight (8) laboratory experiments (wet labs).

The laboratory reports will count for 69% of the lab points.

– Post-Laboratory Question Sheets.

There will be seven (7) post-laboratory question sheets for a total of eight (8) laboratory experiments (wet labs).

The post-laboratory question sheets will count for 20% of the lab points.

– Laboratory Notebooks.

Laboratory notebooks will be collected on the **last week of laboratory** (week of **July 31, 2006**), and can be turned in, **AT THE VERY LATEST**, on the last day of lecture, *i.e.*, **August 3, 2006**. You may receive up to a total of 11% of the lab points. They will be returned to you at the end of the Final Exam, *i.e.*, August 4, 2006, 12 NOON; otherwise, please stop by my office (JE 327), and pick them up.

IMPORTANT REMARK, PLEASE TAKE NOTE:

SCSU Chemistry Department policy requires that students taking courses which include lecture AND laboratory **MUST PASS THE LABORATORY** in that course in order to **PASS THE COURSE**, regardless of the average grade received in lecture.

A **passing grade** for the **LABORATORY** in that course requires that you achieve **AT LEAST 60% of the lab points** in that course, that is to say **a minimum of 105 Points** in the present case (CHE 261); a piece of cake, believe me!

• **Grading Policy.**

Cut-offs for exams and the course as a whole will be **in the vicinity of:**

A ⁺	≥95%	A	≥90%	A ⁻	≥85%	B ⁺	≥78%
B	≥73%	B ⁻	≥68%	C ⁺	≥61%	C	≥56%
C ⁻	≥51%	D ⁺	≥44%	D	≥39%	D ⁻	≥34%
		F	<34%				

In other words, if you are targeting an **A** in this course, you will need to achieve at least $0.90 \times (450 + 200 + 175 = 825) = 742$ **Points** of the **825 Total Points** available in this course; got it??? GREAT!!!

ACADEMIC IMPROPRIETY

This polished euphemism needs to be brought up. 'Cheating' (and I hate to use this term, especially at this august institution) of any kind will not be tolerated, because it degrades the principle of meritocracy. Specific application to this course will largely cover the taking of exams and submission of exams for re-grading.

Verifiable improprieties while taking an exam (such as using unauthorized notes, or blatant examples of 'information exchange') will result in your receiving a mark of zero for that exam. The same holds true for submitting a forged or tampered exam for re-grading. Your graded exams may be photocopied for purposes of verification prior to being returned to you.

*A second incidence will result in your receiving a failing grade for the course, and the episode brought to the attention of a Dean of the College (this is **not** good).*

Further information and specific policies regarding academic impropriety at the University may be found in the *Student Handbook* and other University publications.

STUDENTS WITH DISABILITIES

Students with disabilities who believe that they may need accommodations in this class are asked to contact the Disability Resource Center, located in Engleman Hall C-105A (EN C-105A), at (203) 392-6828 or (203) 392-6131 **as soon as possible** to better ensure that such accommodations are implemented in a timely fashion.

However, if you would like to speak with me about accommodations, or other concerns, such as emergency medical information, or arrangements in case the building must be evacuated, please make an appointment **as soon as possible**. My office location is in Jennings Hall, room 327.

LECTURE OUTLINE

The following is a detailed outline of the material that we **will** cover this Summer / Session B in lecture.

Unit #1: FUNCTIONAL GROUPS AS A BASIS FOR STUDYING REACTIONS AND SYNTHESIS

A. Alkenes	8; 25.6; 19.2; 19.3; 19.5
B. Alkynes	9
C. Polyenes	18; 21.6
D. The Chemistry of Aromatic Compounds. Electrophilic Aromatic Substitution	10; Sulfonation; 14.3.B; 21.7
E. Alcohols, Diols, and Ethers	13

Unit #2: NUCLEOPHILIC ADDITION TO C sp^2

A. Aldehydes and Ketones. Addition Reactions at Electrophilic Carbon Atoms	14
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Unit #3: NUCLEOPHILIC SUBSTITUTION AT C sp^2

A. Carboxylic Acids and Their Derivatives. Acyl-Transfer Reactions	15
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Unit #4: ENOLATES, CONDENSATION REACTIONS, & CONJUGATE ADDITION REACTIONS

A. Enols and Enolate Anions as Nucleophiles. Alkylation and Condensation Reactions	17
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Unit # 5: "A FEW MORE REAGENTS, A FEW MORE REACTIONS"!

A. Synthesis	21.1; 21.2; 21.3; 21.4; 21.5
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*HAVE A GREAT REST OF THE
SUMMER!!!*

LABORATORY OUTLINE

The laboratory component of this course (**CHE 261 lab**) (CHE 261L) will rely heavily on the numerous techniques that were learned during the previous session in order to prepare, isolate, purify, and analyze the products of a wide variety of organic reactions.

If you know in advance that you will not be able to come to your laboratory session, **PLEASE SEE ME as soon as possible**. Non-reported absences occasioned by illness or other legitimate reasons are excused by a memo from a physician or a Dean; non-reported unexcused absences will result in a zero.

The lab schedule is as follows:

Day of . . .	Experiment
July 6th	HELLO AGAIN! GENERAL COMMENTS, SAFETY, & CHECK-IN #1 – Anti-Markovnikov SYN Addition - Hydroboration/Oxidation
July 11th	#2 – Diels-Alder Reaction: 4-Cyclohexene- <i>cis</i> -1,2-dicarboxylic Acid Anhydride
July 13th	#3 – Oxidation of an Alcohol by a Chromate-Impregnated Resin: 9-Fluorenone
July 18th & 20th	#4 – An Oxidation-Reduction Scheme: Part I: Bleach Oxidation of L-(-)-Borneol to Camphor #5 – An Oxidation-Reduction Scheme: Part II: NaBH ₄ Reduction of Camphor to Isoborneol
July 25th	#6 – Grignard Addition to a Ketone <i>and</i> an Ester: Triphenylmethanol
July 27th	#7 – Aldol Condensation: Dibenzalacetone
August 1st	#8 – Synthesis of a Chemiluminescent Substance: Luminol

August 3rd

CHECK-OUT; GOODBYE! HAVE A GREAT REST OF THE SUMMER!

AND LAST, BUT NOT LEAST

CELLULAR PHONES

All cellular phones and pagers and beepers and other devices of this type are STRICTLY FORBIDDEN in the lecture classroom (MO 10) and in the teaching laboratory (JE 325), ...unless TURNED OFF and KEPT AWAY.

Under NO circumstances are telephones to be answered or used to make a call in the classroom or laboratory.

Students who ignore this policy will be asked to leave the classroom or laboratory PROMPTLY, and will receive a grade of ZERO for ALL evaluations to be carried out during that time.

If you are on call for work related emergencies or personal reasons, switch all devices to a mode that will not disturb the class or laboratory (*i.e.*, vibrate mode), and inform the instructor prior to class.

There will be a ZERO tolerance in this course with regard to the use of telecommunication devices, and the rules stated above will be STRICTLY ENFORCED.