

**Chemistry 219 – Organic Chemistry II Laboratory**  
**Sam Houston State University**  
Summer II 2008  
Dr. Donovan C. Haines

**Course Information**

Section 11:        MoWe        1:00-4:50  
Section 12:        TuTh        1:00-4:50

Meet in CFS 123 first for a pre-lab lecture and then in CFS 119 for lab

Note: Section 12 does not meet on 7/8/2008 and Section 11 does not meet on 8/6/2008 to keep the schedules of the sections synchronized.

**Instructor Information**

Dr. Donovan C. Haines

Office: CFS 317F        Phone: To Be Announced

Email: [haines@shsu.edu](mailto:haines@shsu.edu)

Office hours (tentative – listen in class for any changes):

MoWeFr 8:30 am - 9:30 am

TuTh 4:00 pm – 5:00 pm

**Required Materials**

“Chemistry 219 Laboratory Manual”

“The Organic Chemistry Survival Manual” by Zubrick (ISBN 0-471-12948-8)

Note: You will also find the lecture text “Organic Chemistry, 7<sup>th</sup> edition” by McMurray (ISBN #0-495-11258-7) or a similar organic text useful.

Department Approved Laboratory Notebook with perforated duplicates.

Lab goggles (see section on safety)

**Suggested Materials**

Dish Soap

Latex or neoprene gloves

A black “Sharpie” marker to label your glass while in use

**Attendance Policy**

No make-ups are possible. If you miss a class period a grade of zero will be recorded for any experiment assigned for that day. Missing two labs will mean automatic failure for the course.

## Lab Safety

PRIOR TO COMING TO LABORATORY, YOU MUST HAVE A PAIR OF DEPARTMENT APPROVED SAFETY GOGGLES. These goggles must be worn at all times in the laboratory. You will not be allowed to participate in the day's experiment or activities without safety goggles and will be counted absent with the loss of points associated with the experiment. SHORTS AND OPEN SHOES WILL NOT BE ALLOWED IN THE LAB. Long hair must be tied back. If you show up for lab in shorts or open toes shoes you will not be allowed to participate and will be given a zero for that lab. More extensive safety requirements are located in the first few pages of your lab text and will be discussed the first day of class.

## SHSU Catalog Descriptions and Prerequisites

**CHM 238 Organic Chemistry I: Lecture.** [CHEM 2323] A study of chemical bonding and structure of organic molecules is made. Functional group reactions and syntheses are emphasized. Reaction mechanisms, nomenclature and isomerism are studied.

Prerequisite: A minimum grade of C in CHM 138/118, 139/119. Fall, Spring, Summer I. Credit 3.

**CHM 239 Organic Chemistry II: Lecture.** [CHEM 2325] The general plan of CHM 238 is continued. Fall, Spring, Summer II. Prerequisite: A minimum grade of C in CHM 238. Credit 3.

**CHM 218 Organic Chemistry I: Laboratory.** [CHEM 2123] Laboratory for CHM 238.

Prerequisite: A minimum grade of C in CHM 119, and prior credit for or concurrent enrollment in CHM 238. Credit 1.

**CHM 219 Organic Chemistry II: Laboratory.** [CHEM 2125] Laboratory for CHM 239.

Prerequisite: A minimum grade of C in CHM 218, and prior credit for or concurrent enrollment in CHM 239. Credit 1.

## Lab Schedule

Dates	Experiment Number	Title
July (7)/8	No lab	No lab
July 9/10		Check-in and Introduction to NMR
July 14/15	6	Diels-Alder
July 16/17	2	Preparation of 1,4-Di-t-butyl-2,5-dimethoxybenzene
July 21/22	4	Acid preparation by the hydrolysis of an ester
July 23/24	7	Beckmann rearrangement
July 28/29	9	3-Carboethoxycoumarin
July 30/31	11	Aldol
August 4/5		Clean up, Check out, and Final Exam

## Pre-Lab Sessions (CFS 123)

In the pre-lab session, the pre-laboratory work will be turned in for the next experiment, the write-up for the previous experiment will be turned in, the laboratory quiz will be given, and the laboratory preparation for the next experiment will be given. If you do not attend the pre-lab (i.e. if you are late), you may not perform the next experiment and will receive a zero for that assignment.

### *Before Pre-Lab*

Before coming to pre-lab, you must prepare for the lab quiz, prepare to perform the experiment, set up your lab notebook, and read and study any assigned or necessary materials. Check the schedule of experiments to find out which experiment is to be performed and any additional requirements. Read the experimental description from the lab manual and any appropriate sections in the Zubrick book covering techniques to be used. You must also have already set up your lab notebook, as you will not be allowed to bring your lab manual to the laboratory. The only personal items allowed in the laboratory are your notebook, Zubrick, a calculator, and a blue or black non-erasable pen.

### *In Pre-Lab*

An overview of the next experiment will be given covering the important aspects of the coming experiment, as well as material on spectroscopic analysis. Periodically, problem sets covering spectroscopic analysis or problems directly related to the lab material will be given out that will be due at the next pre-lab. A quiz will be given that covers the previous experiment, the general details of the coming experiment, the techniques used in the experiments, spectroscopy, and/or lab safety.

### Lab Notebooks

Prior to coming to the lab, the notebook must be prepared as outlined below:

- I. First page with name and table of contents
  - a. Name and ID # at the top
  - b. Table of Contents to show: 

Page #   Experiment Title
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- II. For each experiment
  - a. Title
  - b. A one or two sentence summary of the experiment
  - c. If a reaction is to be performed, the reaction should be shown using complete structural formulas
  - d. Reagent tables as follows (should include all reagents used in the experiment):

<u>Reagent</u>	<u>Formula</u>	<u>MW</u>	<u>Mass or vol</u>	<u>Mmol</u>	<u>Cautions</u>
Sodium hydroxide	NaOH	40.0	5.0 g	125	Caustic, strong base

- e. Outline of experimental procedure with sufficient detail to actually perform the experiment. This is important since the lab manual itself is not allowed in lab.
- f. Describe your actual procedure. The true amounts of materials weighed out and equipment used. Include any observations such as temperature or color changes.  
For example:  
“I weighed out 4.98 g of NaOH pellets and placed them into a 100 mL single-neck boiling flask. Two boiling chips were added to the flask with 25 mL of water. The dissolved NaOH was very warm, ...”
- g. Calculation of percentage yield
- h. Discussion of results
- i. Answers to questions for the experiment

### **Product**

For each lab experiment in which a product is prepared, the product must be weighed, its percent yield calculated, melting point taken if it is a solid, and placed into a sample vial provided. The vial must be labeled with your name, your section number, the structure of the product, yield, percent yield, and melting point. This is to be turned in by the deadline given by the TA for each experiment.

### **Reports**

For exam experiment, a report will be turned in that consists of the following items:

- a. Complete copy pages from the lab notebook for each experiment.
- b. The spectra with attached interpretation for the prepared product.
- c. The completed original beige question pages from the lab manual.

### Grading

For each lab a grade (out of 10 pts) will be computed as follows:

First lab: successfully checking-in (2 pts), obtaining an NMR spectrum (4 pts) and problem set (4 pts) = 10 points.

Second lab: successfully obtaining an IR spectrum (5 pts) and problem set (5 pts)

Other experiments: Quiz (4 pts) + Report (4 pts) + Product (2 pts) = 10 pts

Other problem sets are 10 points each.

For the semester, your grade will be determined as 70% from your lab grades and 30% from your lab final exam grade. You must get 90% of the points possible for an A, 80% for a B, 70% for a C, and 60% for a D. Below 60% will receive an F.

## University Wide Policies

Additional details can be found at <http://www.shsu.edu/syllabus/>.

### **ACADEMIC DISHONESTY:**

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. For a complete listing of the university policy, see:

<http://www.shsu.edu/administrative/faculty/sectionb.html#dishonesty>

### **STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY:**

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911 (a) (2) defines a religious holy day as: "a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20...." A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed. For a complete listing of the university policy, see:

[http://www.shsu.edu/~vaf\\_www/aps/documents/861001.pdf](http://www.shsu.edu/~vaf_www/aps/documents/861001.pdf)

### **STUDENTS WITH DISABILITIES POLICY:**

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance are expected to visit with the Office of Services for Students with Disabilities located in the Counseling Center . They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Counseling Center . For a complete listing of the university policy, see:

[http://www.shsu.edu/~vaf\\_www/aps/811006.pdf](http://www.shsu.edu/~vaf_www/aps/811006.pdf)

### **VISITORS IN THE CLASSROOM:**

Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.