

**ORGANIC CHEMISTRY I LAB (CH 323L)  
COURSE OUTLINE  
FALL SEMESTER 1999**

F. David Horgen

**Lab Manual:**

Pavia, Lampman, and Kniz, "Introduction to Organic Laboratory Techniques," 3rd Ed., 1988

Reading must be done PRIOR to coming to lab. The lab manual should be with the student during each lab period (xeroxed pages are not acceptable).

**Other Sources:**

Organic Chemistry Lab File with hand-outs; Molecular Models

Software: ChemDraw (for Windows); Chem 3-D.

Physical characteristics, safety and toxicological data about most of the compounds used during this lab session can be accessed through the following Web sites (among others):

<http://chemfindei.camssoft.com>      <http://www.fisher1.com/catalogs/index.html> (and click on Acros Organics)

**Safety Requirements:**

It is not only common sense to be safety conscious in the lab, but it is also a legal requirement. Our labs are equipped with extensive safety features. However, lab safety starts with the individual: Eye protection (safety glasses or safety goggles) and adequate footwear must be worn at all times in the lab (whether actively working or not). Long hair must be tied at the back. Under no circumstances should an experiment be left unattended. Each student should possess a pair of rubber gloves and a roll of paper towels.

**Grading:**

~~Each student must provide~~ a bound, hard cover laboratory note-book with numbered pages and have this book with him/her in the lab at all times. Experiments should be written up during the lab period. The following tasks will constitute the basis of the lab grade. All these tasks must be attempted in order to pass the lab course.

Lab quizzes	25%
Lab note-book	25%
Results	25%
Experimental competence	25%

No make-up labs will be given with the exception of extraordinary circumstances such as a verified medical excuse with written verification from an MD detailing student's inability to attend lab. Any student with more than one unexcused absence will not be able to pass the lab course.

**General Comments:**

The focus of the present lab course will mainly be on certain fundamental lab techniques such as distillation, recrystallization, liquid-liquid extraction. These techniques will be used in simple syntheses during the latter part of the semester. The experiments are designed to achieve an overlap between the lab and the lecture course. Efficient use of time in the lab is the key to success in this lab course. It is hoped that students are able to accomplish both practical and theoretical work during the lab periods, and also have fun.

## LABSCHEDULE

Week	Dates	t	Reading Assignment
1	8/31, 9/2* 9/3	Introduction-Orientation Check-in; Bench <u>Assignment</u>	
1/2	9/2*; 9/7 9/10	Fractional Distillation: Separation of a Mixture of Volatile <u>Organic Liquids</u>	PLK Technique 7 Fig 7-2, 567; Hand-out
2/3	9/9; 9/14 <u>9/17</u>	Molecular Models Workshop	Hand-out
3/4	9/16; 9/21 9/24	Recrystallization and Melting Point of Acetanilide	PLK Experiment 2 . 40-42; 541-550
4/5	9/23; 9/28 <u>10/1</u>	Dehydration of 2-Methylcyclohexanol	Hand-out
5/6	9/30; 10/5 10/8	Isolation of Eugenol from Allspice, <u>Steam Distillation</u>	PLK Experiment 18A and Technique 8 (Fig 8.3) . 138-141; 582-587
6/7	10/7; 10/12 10/15	Synthesis of Methyl Eugenol: Investigation of Insect Pheromone <u>Activity</u>	Hand-out
7/8	10/14; 10/19 10/22	Preparation of n-Butyl Bromide	PLK Experiment 23A . 173-176; 541-564
8/9	10/21; 10/26 10/29	(...finish distillation of n-butyl bromide) Photobromination of 1,2-Di hen lethane bibe l)	Hand-out
9/10	10/28; 11/2 <u>11/5</u>	Preparation of Diphenylacetylene	Hand-out
10/11	11/4; 11/9 11/12	Hexaphenylbenzene: Diels-Alder Reaction of Di hen lace lene and Tetra hen lc clo entadienone	Hand-out
12	11/16; 11/18 11/19	Multi-step Synthesis: Stereoselective preparation of trans-cyclohexane-1,2-diol from cyclohexene: <u>Preparation of 2-bromoc clohexanol</u>	Hand-out
13		No Labs: <u>Thanksgiving</u> Break	
14	11/30; 12/3 12/2	Multi-step Synthesis, cont.: <u>Preparation</u> of c clohexene oxide	Hand-out
15	12/7; 12/9 12/10	Multi-step Synthesis, cont.: Preparation of trans-cyclohexane-1,2-diol; <u>Check-out</u>	Hand-out

Introduction, Orientation, and Fractional Distillation will be combined on 9/2/99 for the Thursday section.