

CHE-205-01 ORGANIC CHEMISTRY LABORATORY I
Fall 2008 (1 credit) Instructors: Drs. Griswold, Marino

Course description: Laboratory experimentation involving the synthesis, isolation, purification, and structure verification, and safe handling of carbon compounds.

Outcomes: This experience enhances technical literacy, allows for familiarization with the major techniques for safe handling of organic compounds, and develops written skills through accurate recording of experimental observations and interpretations.

Lab meets: by assigned sections, SC128. Cross-cutting is not permitted.

Lab texts: (1) *Organic Chem Lab Manual*, Departmental publication
(2) Zubrick, "Organic Chem Lab Survival Manual", 6th or 7th ed., Wiley.

Other needed items: safety glasses and laboratory notebook.

Attendance: You must be at all scheduled labs. No makeups except for valid, documented reasons. Unexcused absences result in a grade of zero for a given experiment. Lateness to lab results in a grade reduction.

Grading: 8 experiments, 100 max. points each = 800 pts
Lab exam: 100 points, Lab notebook: 100 points
Total 1000 possible points. Lab is a separate 1-credit course.

The grade on a given experiment is a combination of (1) product yield and quality, and (2) the laboratory report for the experiment.
Safety or procedural violations may carry grade deductions.

Restrictions: Any student who is *pregnant* can not work in this laboratory.
Any student with a *documented disability* or impairment must inform the instructor during the first week before experimentation.

Safety rules: These are discussed during the first laboratory meeting of each section, and you must sign a verification that you understand the rules. (see pp. 3-4 in the lab packet).

Lab reports: Each experiment requires a lab report to be submitted, usually one week after the product has been turned in. Check the schedule of activities to see when reports are due. Graded reports are usually returned one week after submission. Late reports carry a 10% grade penalty for each day after the due date. No report is accepted if it is overdue by more than 5 days. *Lab reports are expected to be your own work: not copied from any other source.*

Lab notebook: This will be discussed at the first meeting of your section.

Schedule of experimentation, with lab packet ref. pages and due dates.

<u>Week of</u>	<u>experimentation</u>	<u>ref. pages</u>
25 Aug	check-in to lockers, lecture on procedures, safety	1-8
1 Sept	no labs this week due to holiday.	
8 Sept	recrystallization and melting points	18-23
15 Sept	complete recrystallization, take mp and turn in product.	
	synthesis of 1-bromobutane	24-26
22 Sept	(recrystallization lab report due). Complete 1-bromobutane and turn in product Lecture on oxidation-reduction balancing	39-42
29 Sept	Side chain oxidation of mandelic acid (1-bromobutane lab report due)	39-42
6 Oct	Weigh benzoic acid product from mandelic acid oxidation (mandelic acid oxidation lab report due 4pm Friday Oct. 10)	
	Dehydration of 2-methylcyclohexanol and gas chromatography of product mixture (students will work in pairs on this experiment)	30-34
13 Oct	no labs this week due to semester break.	
20 Oct	visual delights: tetraphenylporphin synthesis and Diels-Alder reaction (These count as one experiment)	46-47 66-67
	(gas chromatography lab report due by end of day Oct. 24)	

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Schedule of experimentation (continued)

- 27 Oct (Tetraphenylporphin report due; weigh and turn in Diels Alder product with report) ---two reports due.
fragrant esters: **synthesis of isopropyl isobutyrate** 48-51
- 5 Nov complete isopropyl isobutyrate: Infrared Spectrum,
Turn in product.
- 10 Nov Aldol condensation: **anisalacetophenone** 56-59
or **2-hydroxybenzalacetophenone** (or handout)
(isopropyl isobutyrate lab report due)
- 17 Nov Weigh and turn in Aldol Condensation product.
Grignard Reaction: **synthesis of benzhydrol** 52-55
(work in pairs)
- 24 Nov (turn in Aldol Condensation lab report)
Complete Grignard reaction: turn in weighed product and report
next week
- 1 Dec (Turn in weighed Grignard reaction product. Report is due at
end of day on Friday, Dec. 5)
Lab Exam. Turn in lab notebook.
Check-out of lockers.