Chemistry 332
Organic Chemistry Lab Spring 2013
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Textbook Information: Experimental Organic Chemistry – A Miniscale and Microscale Approach John C. Gilbert, Stephen F. Martin Fourth Edition

Class Attendance and General Advise:

Attendance to the laboratory is essential to a successful experience in organic chemistry. You are expected to attend every lab session unless you have a university sanctioned excuse or I deem it is valid. If for some unforeseen reason you will not be able to attend lab, please see me as soon as possible. Labs will NOT be able to be made up and absence during a lab will result in a ZERO (0) for that experiment.Take note that some labs require multiple periods, so failure to attend the first period or any of the between periods will not be healthy to your grade. In addition, ***ALWAYS WEAR YOUR GOGGLES!!!*** Goggles are provided by your laboratory instructor. Safety is the number one priority and many, and to some extent all, organic chemicals are toxic. Above all, do not be afraid to ask me questions.

1) Lab starts promptly at 2:00 pm. Please be on time.
2) Wear appropriate clothing (NO shorts, NO open-toe shoes, NO tank-tops).
3) No food or drink of any kind allowed in the lab.
4) Read the prelab discussions and complete the necessary prelab write-up before arriving for lab.
5) Notify me of any glassware breakage, chemical spills, or emergencies immediately.
6) Your lab area, lab equipment, etc. must be cleaned prior to leaving lab.
7) Long hair must be tied in the back.
8) ABSOLUTELY NO Phones / NO TEXTING.

Notebooks

I have included what I expect to see in the laboratory notebooks on blackboard. Examples and explanations of these are given on pp.10-13 in the lab manual. ***We will be performing the miniscale procedures*** for all experiments. Pencils, white out, colored pens (other than black or blue) are NOT permitted or acceptable for your notebooks. Deductions will be made according to theses guidelines and periodic notebook checks will be made (unannounced).

Laboratory Reports

Lab Reports are due the following lab period from which an experiment is completed. Multiple period labs will be due the next lab period after completion. Theses should be written neatly and legibly in black or blue ink. The following information should be included:

Prelab

1) Name and Date

2) Experiment Title i.e.(The extraction of Caffeine from Tea)

3) Purpose: A brief summary of what you are trying to accomplish and/or learn from this experiment. (Not just a restatement of title). List methods, etc.

4) Data & Calculation: You want to include all the vital information that you should know prior to coming to lab. For example, if you were extracting caffeine, you would want to draw out the chemical structure, and the important physical properties such as MW, melting point or boiling point. The mechanisms of reactions (if you are running a reaction) must be shown in the lab notebooks and can be obtained from the lab manual. Theoretical and percent yields should be calculated if it pertains to the experiment. Include equations and quantities of materials needed. Show your calculations.

5) Procedure: You are expected to write out a general procedure that you will perform during the lab on that day. DO NOT copy the procedure word by word from the lab text book.

Postlab

6) Observations: While performing the experiment, record any color changes, exothermic etc.

7) Results: This is the location where you would record the temperature values (i.e. simple distillation), or melting point range (i.e. m.p of the recrystallization of benzoic acid), etc.

8) Conclusion: I would like to see a brief, but informative conclusion to the lab. You should state possible errors. Why do you think your yield was low, other than you might have screwed up? Maybe yield was low because you hurried when you should have taken your time, or maybe you lost some in transfer. This should be included in your conclusion. I would also like some mention of what

you may have learned in the lab. This may improve your techniques for later experiments.

9) Question/Answers – few questions will be assigned per lab.

The course grade will be assigned based on your point totals from the lab experiments (quality/quantity of reaction products) and reports, quizzes and the final. It is strongly encouraged that you prepare your lab book for the upcoming experiment prior to arriving at class. This pre-lab writing should include equations of experiments, brief descriptions of procedures, and quantities of materials needed.

During the laboratory, your data should be recorded into a laboratory book (in ink), and the data pages must be signed by the instructor prior to your departure from lab. Lab books must also have numbered and duplicate pages. Lab reports are due as assigned by the syllabus. Points will then be assigned based on the quality of data and the presentation of your results. Typical lab reports are provided in the introductory section of the textbook. Lab reports should express your contribution to the experiment; lab reports copied from any source will receive a grade of zero.

Late Policy

Late lab reports will be accepted at a point deduction of 10% per day late. Lab reports will not be accepted more than 1 week (7 days) late.

An **UNEXCUSED** absence will also result in a ZERO grade for that lab.

Lab Reports (20 at 50 points each)	1000 points
Quizzes (23 at 5 points each)	115 points
Final Exam	200 points
Total	1315 points

Daily Quizzes

Quizzes will include short question/answers related to

- theory (such as the definitions in the prelab reading)
- procedure (why you added acid to the water and not the other way around, etc.)
- calculations (percent yield, percent recovery, theoretical yield, etc.)

Grading Scale: 90 – 100 A
80 – 89 B
70 – 79 C
60 – 69 D
0 – 59 F

Safety

Safety goggles are required at all times in the laboratory. No food or drinks are permitted in the laboratory. Waste chemicals must be properly disposed. Refer to the textbook for more comprehensive discussions of safety. Pregnant students should consult with their doctors regarding the risks of being enrolled in this and other laboratory classes.

Your grade in organic laboratory is largely based on the work done in completing the assigned experiments and understanding the techniques/procedures. An important part of any laboratory work involves following laboratory safety rules. Consequently, your grade will also be based upon your adherence to the safety rules. Because of several recent violations of the safety rules in the laboratory classes, a policy is now being instituted in which your grade will reflect your keeping of the safety rules.

The table below describes the penalties that will be accessed with violation of safety rules. Note that the safety goggle violation represents the majority of the grade. The Chemistry Department has a strict goggles policy, and you are required to wear your goggles at all times during laboratory classes, except perhaps during discussions. Goggles are available free of charge at the chemistry stockroom, and they must be the type approved by the Chemistry Department.

COMING IN LATE	Minus 10 points
LATE PRELABS/ LAB REPORTS	Minus 10 points per day
NO GOGGLES	Minus 30 points
NOT CLEANING UP CHEMICAL SPILL (at the balance, at your work area, in fume hoods)	Minus 20 points
FOOD/DRINKS IN LAB	Minus 10 points
IMPROPER WASTE DISPOSAL	Minus 10 points
DISPOSING GLASS IN WASTE BASKET (Designated “Glass Waste” container to be used)	Minus 10 points

Blackboard

Grades will be posted on the course blackboard site as your turned in class materials are graded. Additionally, the labs not available in the textbook will be available on blackboard. You are therefore required to have access to blackboard. See me with any issues logging into blackboard.

Date	Experiment
01/14	Check In
01/16	**No Class**
01/21	**Martin Luther King Day-No Class**
01/23	Exp. 3.2B Recrystallization & Melting Point of Benzoic Acid
01/28	Synthesis of Aspirin *
01/30	Exp. 4.3 Simple Distillation
02/04	Exp. 4.4 Fractional Distillation
02/06	Exp. 5.3A One-Base Extraction
02/11	TLC of Drugs Read pps 175-180
02/13	Preparation of Isopentyl Acetate (Banana Oil) – 2 day lab *
02/18	Isopentyl Acetate (Banana Oil) *
02/20	Exp. 14.4 Preparation of 1-bromobutane
02/25	Exp. 14.5 Preparation of 2-Chloro-2-Methylbutane
02/27	Exp. 10.6 Bromination of (E)-Stilbene
03/04	Dehydration of 4-methylcyclohexanol *
03/06	Exp. 16.2A Oxidation of Cyclododecanol to Cyclododecanone
03/10-03/17	**Spring Break-No Class**
03/18	Exp. 17.4 Reduction of 9-Fluorenone
03/20	Exp. 15.3 Friedel-Craft Acylation of m-Xylene
03/25	Exp. 15.5 Relative Rates of Aromatic Substitution
03/27	Exp 19.4A Reaction of Grignard Reagents
04/01	Exp. 19.4B Reaction of Grignard Reagents
04/03	Preparation of 3-Nitrobenzaldehyde (Aldol Condensation) *
04/08	Exp. 18.4 Preparation of 4,4-Dimethyl-2-Cyclohexen-1-one (2 day)
04/10	Exp. 18.4 Preparation of 4,4-Dimethyl-2-Cyclohexen-1-one
04/15	Preparation of Nylon (Polyamide) *
04/17	Synthesis of Luminol *
04/22	Check Out/ Review
04/24	Final Exam

Quizzes will be given at the start of every lab period.

Final Exam will be on **04/24/2013** at the normal lab time and room.

* Those labs are NOT in your lab text-book. Therefore, I will provide handouts for those labs at least couple of days before performing that lab.