ORGANIC CHEMISTRY LAB NOTES 1990-91

This is a laboratory course designed to develop your skills in dealing with experimental problems. A good experimentalist must have several important qualifications. He/she must have, or develop, the ability to pay strict attention to detail, to reason scientifically, and to master new techniques and manipulate equipment.

Laboratory work is not a jumble of unrelated operations; there must be a good reason for everything that you do. IF YOU DO NOT KNOW WHAT YOU ARE DOING AND WHY YOU ARE DOING IT, YOU DO NOT BELONG IN A LABORATORY.

GRADING

Each experiment will be worth 100 points, with the following distribution:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Notebook</td>
<td>15</td>
</tr>
<tr>
<td>Procedure, Data and Observations</td>
<td>50</td>
</tr>
<tr>
<td>Safety</td>
<td>10</td>
</tr>
<tr>
<td>Summary of Results and Discussion</td>
<td>25</td>
</tr>
</tbody>
</table>

In addition, for CH 224, there will be a 50 point set of prelaboratory questions.

Notebooks

An accurate record of your experimental procedure, results, observations and conclusions is an indispensable part of scientific work. Human memory is faulty and unreliable enough that a written record of results is necessary for future reference. Your notebook should be written so that it is intelligible to anyone conversant with the subject. You are to follow the guidelines for notebooks in Section 1.3, pp. 6-17, of your laboratory text. See your instructor if you have any questions about the notebook format. Also, note the excerpt from the Journal of Chemical Education concerning Victor Grignard’s notebook posted on the bulletin boards in Room 601, Chem-Met.

Notebooks must be hardbound and written in permanent ink. We recommend a bound lab notebook by W. H. Freeman (ISBN#0-7167-1876-6, available at the MTU Bookstore) with duplicate pages. NOTE: You must use a ball point or other hard-tip pen and write firmly for legible carbon copies. The cover should have: your name, course and section numbers, term, your desk number and telephone number. Carbon copies are to be turned in to your instructor each week for grading.

Preliminary Notebook

Some preparation is required before coming into the laboratory. This will include reading the experiment and techniques involved, and making some preliminary entries into your notebook. NOTE: You will not be allowed to have you lab textbook with you during the laboratory. You may have notes on the experimental procedure with you, but not as a photocopy. You will find the experiments much faster and easier if you are thoroughly acquainted with the experiment beforehand.
Results and Discussion

Upon completion of the experiment, you will prepare a summary which will be due one week after the scheduled completion of the experiment. The format will vary somewhat depending on the experiment. Specific guidelines will be given by the instructor for each experiment, but will mainly include:

- a statement of results (% yield, % composition, or other)
- interpretation of results
- a product analysis

The product grade will be based on the product having the proper color without any extraneous material. When appropriate, you will be graded on the % yield as well as the purity of your product. When turning your product in for analysis, the following label format should be used:

```
ACETAMIDE
C₆H₅ - C = O
C₆H₅ - C = NH₂
15.6 g (92% yield)
N for B P
C₆H₂2H₄
EXP DATE
```

Some points to be considered while writing the summary include:

1. Conciseness: avoid wordy, flowery explanations that don’t say much.
2. Completeness: were all the important ideas covered?
3. Error Analysis: discuss low yield, compare melting point or boiling point to the literature values. Explain differences.
4. Discuss parts of the procedure and/or problems encountered that could have affected the results. Include pertinent observations and their interpretation.
5. Do not repeat the procedure in the summary.
LATE PAPER POLICY

Preliminary Notebooks

Notebooks are due the day you start the experiment. If not done on time, you will:
1) receive a zero for that portion of the experiment, and 2) not be able to start the experiment
until the notebook is completed.

Summary of Results

Summaries are due one week after the completion of the experiment. There will be a 5
point penalty if one week late and a 10 point penalty if two weeks late.
After two weeks, no grade will be given. You will receive a check which indicates that
you did the work. This will be taken into consideration when determining your final grade.

ALL WORK MUST BE TURNED IN TO RECEIVE A PASSING GRADE.

MAKE-UP POLICY

1. Make-ups are allowed for excused absences only - illnesses and university sponsored field
   trips. Notify your instructor as soon as you know you will miss a laboratory! You will be
   rescheduled into another laboratory, with the same TA if possible. You must either:
   a. Visit(Room______ ) or call your TA(Phone__________).
   b. Leave a note for the TA in Room 607. Include your phone number.
   c. Call Dr. A. Makinen (2044) or see her (Rm. 510-A).
   d. Call or see Dr. M. Logue (Rm. 202-L, Phone 2910) or Dr. P. Murthy (Rm. 701-C,
      Phone 2094).

Try a-d in the order given.

2. All absences must be made up by Friday of Week 9. In the event of extenuating
circumstances preventing a make-up, e.g. extended hospitalization, you must see/contact
the supervisor.

3. Two unexcused absences will result in an F for the course.

KEEP THESE NOTES FOR AS LONG AS YOU ARE ENROLLED IN ORGANIC CHEMISTRY