Organic Chemistry Lab CHE 310L-015
Fall 2007

Tuesday 9:25a.m.-12:25 p.m. SC 465
Instructor: Gwen Fields office: SC 442 Phone: 572-6681
E-mail: Fieldsg@nku.edu Office hours: M 11:00 a.m.- 12:00p.m. R 8:15-9:15 a.m.

Prerequisite: CHE 121 and CHE121L
Co-requisite: CHE 310 ****If a student withdraws from the 310 lecture at any time, he / she must also withdraw from the lab****

- A C or better is required in this course to go on to CHE311L.

Text: "Techniques in Organic Chemistry",Jerry R. Mohrig
"Organic Chemistry I Laboratory Manual", (online Organic Chemistry Course site)

Equipment: Safety glasses , Laboratory research notebook and nonprogrammable calculator.

Laboratory Schedule

Date	**Experiment**	**Due Date**
8/21	Check-in / Melting point	8/28
8/28	Recrystallization	9/4
9/4	Unknown Purification and ID	9/11
9/11	Fractional Distillation	9/18
9/18	Acid / Base Extraction	9/25
9/25	Thin Layer Chromatography	10/2
10/2	**Midterm exam** (M.P. thru TLC)	
10/9	Column Chromatography	10/23
10/16	Fall Break – No Lab	
10/23	Molecular Modeling	10/30
10/30	Nucleophilic Substitution	11/6
11/6	Bromination	11/13
11/13	Dehydrohalogenation	11/20
11/20	Carbocation Rearrangement	12/4
11/27	Finish Carbocation	
12/4	**Final exam**	

LAB REPORTS ARE DUE AT THE VERY BEGINNING OF THE NEXT LAB PERIOD.
If you need help with the lab report, I am happy to assist you if you come to me prior to the lab class in which the report is due. I will not give any assistance if you ask on the day that the report is due as that would be unfair to the students who have turned in their report on time.

Tentative Grading Scheme

Melting Pt.	15 pts.
Molec. modeling	25 pts.
All other experiments	50 pts. each
4 pre-lab quizzes	24 pts. each
Midterm exam	125 pts.
Final exam	125 pts.
Total Points	886

According to the point system, reports represent 61% of your grade. The four unannounced quizzes will be 11% of your grade. The exams will be worth 28% of your final grade.

Grading Scale		Total Points Needed
90 - 100 %	**A**	793-886
80 - 89 %	**B**	704-792
70 - 79 %	**C**	616-703
60 - 69 %	**D**	527-615
0 - 59 %	**F**	≤526

Break-Down of Experiment Grading

Notebook (protocol, data, and observations)	15 pts.
Calculations and questions	25 pts.
Conclusion	10 pts.

These values will vary some with each experiment

Everything that you do MUST be done in your lab notebook. You don't need to print out the data sheets that go with each lab as I do NOT require you to turn them in.

The above sections will be graded on neatness, content, readability, and spelling. Each section of the notebook should be labeled and in the following order: Title, purpose, chemical reaction equation (with physical data listed under each chemical), protocol (written in the left side column), data and observations (written in the right side column), calculations, conclusions

The following lists and describes the necessary components of the lab notebook, in the appropriate order.

Protocol: Students are to come to lab with a thorough understanding of the principles involved in the experiment, the goals of the experiment, and the procedures to be followed. The laboratory notebook must contain a completed protocol for each experiment, as specified in the online lab manual prior to entering the lab. A sample protocol is shown in the introduction section of the online manual. This protocol is to be initialed by the instructor prior to beginning the experiment. No text book or supplement will be used or present in the lab hood during the laboratory period.

Data and observations should consist of the ACTUAL amounts reagents that are used by the student, as well as anything that you see, hear, or smell (that is related to your experiment) while doing the lab. Data and observations should be recorded as the experiment is being conducted, in the right column of the notebook, across from the corresponding step in the written protocol. The color and physical states of reagents, intermediates and products should also be noted. The data section should contain the actual amounts of reagents / products used or obtained in the experiment. It is not sufficient to list the theoretical amounts of reagents needed in the protocol section and to assume that this was in fact the exact amount of a reagent that you actually used If, for example, the protocol says to use 1.0g and you did in fact weigh out exactly 1.0 g, then write 1.0 g in the data section as well. The data and observations must be signed by the student

and the instructor when the experiment is completed. Before leaving the lab, your top copy notebook pages containing the protocol through data and observations should be turned in to the instructor. All work should be recorded in pen and any mistakes written in the notebook should be crossed out with a single line, not a big scribble cloud.

Calculations, with **all the work (formulas used) shown** should be done in the lab notebook also. If any instrumental analysis is done a data table of results should be included in the notebook. A refresher on how to calculate a theoretical and percent yield is given in the online manual.

Post-Lab Questions are to be written in the notebook also. These questions can be found in the online manual on the data sheets. Some experiments have questions while others do not. You are responsible for checking the data sheets for any questions that may be assigned.

The conclusion section should be done in paragraph form and should contain the following information. State the purpose of the experiment and whether or not it was achieved. A general statement of the techniques and/or type of reaction done. Names of starting materials and product(s). List any important results or findings, such as % recovery or the proof of identity and purity of an unknown. Give an interpretation of the results including any instrumental analysis information. Lastly, discuss any meaningful sources of error and how they influenced your results.

*Late assignments will be reduced 2 points per school day.

*Lab quizzes will be unannounced and will be given in the first 15 minutes of the lab period. Anyone who is late for lab can take the quiz until the 15 minutes is up or until the last prompt student is finished with their quiz whichever comes first. If a quiz is missed for any reason it CANNOT BE MADE-UP.

*Make-up labs are discouraged. In case of emergency, a student may have ONE make-up lab for the semester with the following criteria. A 5 point deduction will be taken from the report. The options for a make-up day is Thursday from 9:25a.m.-12:25 p.m. or 1:40-4:40 p.m. and the make-up lab must be done within one week of the missed experiment. If an experiment is missed, **you must speak directly to the instructor** by 12:00 p.m. on the day of the missed lab. Try to contact me by phone. If I'm not in my office, leave a message and a phone number where you can be reached. If you do not hear from me by 12 p.m. on the day you missed, assume that I didn't get your message and call again or e-mail me again including a phone number where you can be reached. Do Not show up at 9:25 a.m. the next week and assume that you can do a make-up if you have not spoken to the instructor. Your make-up will be denied and a zero will be given for the missed experiment.

*Additional safety rule. There will be no shorts or other clothing in which the legs are bare. Open toe shoes are also forbidden. Anyone who arrives in the forbidden garb will not be allowed to enter lab, will have to use their make-up lab, and if it is already used, will take a zero.

- Students are responsible for reading and understanding all items on the syllabi. Any items not understood must be brought to the attention of the instructor within the first two weeks of class.
- The work you will do in any course is subject to the Student Honor Code. The Honor Code is a commitment to the highest degree of ethical integrity in academic conduct, a commitment that, individually and collectively, the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain an academic advantage over fellow students or avoid academic requirements.
- Cheating will not be tolerated. In accordance with the Code of Student Rights and Responsibilities, faculty members have the right to determine actions to be taken when a student is caught cheating.
- Faculty members reserve the right to dismiss or to have removed a disruptive student from their classrooms.
- Students with disabilities who require accommodations (Academic adjustments, auxiliary aids or services) for this course must register with the Disability Services Office. Please contact the Disability Service Office immediately in the University Center, Suite 320 or call 859/572/6373 for more information. Verification of your disability is required in the Disability Services Office for you to receive reasonable academic accommodations.
- Because there are usually more students seeking to enroll in laboratories than can be accommodated, students not present for the first meeting of a chemistry laboratory in which they have enrolled may be dropped from the class immediately, unless they have notified the instructor of the chemistry department at 52-5409 of their expected absence. If the lab from which they are withdrawn is a co-requisite for a lecture course, the student will be withdrawn from that lecture also.
- All items on syllabi are subject to change by the instructor.

Student Learning Outcomes

1. Demonstrate the ability to carry out experimental protocols using modern instrumentation and methods.

2. Utilize critical thinking skills to apply concept knowledge and adapt experimental techniques to: a) form and test hypotheses and b) solve scientific problems

3. Compile, critically evaluate, and interpret scientific information and data.

4. Effectively communicate scientific information through written and oral means