ORGANIC CHEMISTRY LABORATORY II
Fall 2016 Syllabus

Course & Instructor Information:

Lab Instructor/Section:
Office:
Email:
Office Hours:

Lab Coordinator: Dr. Gail Horowitz
Office: 5315 Ingersoll
Email: ghorowitz@brooklyn.cuny.edu
Office Hours: Mon 10:45 am-12:45 pm & by appt

Statement of Course Goals:
The goals of the Organic Chemistry II Laboratory course are to build upon the concepts learned in the Organic Chemistry I laboratory as well as to learn critical thinking and independent problem solving skills.

Required Purchases:
1. Organic Chemistry II Lab Manual, 2016 edition (available at Brooklyn College bookstore)
2. Composition Notebook
3. Lock for Lab Drawer
4. Paper Towels
5. Soap

Recommended Purchases:
1. Laboratory Coat (http://www.justlabcoats.com/ProductShopping.aspx?scode=DI-83403)
2. Box of Disposable Gloves

Grade Breakdown:
Laboratory Reports (prelabs+postlabs) - 70%
Identification of Unknowns – 20% *
Safety Assignment – 5%
Instructor Evaluation – 5% **

** Each student will receive 2 unknowns, each worth 10 points.*
A student who correctly identifies his or her unknown will receive full credit (10 points).
A student who identifies the correct functional group, but wrong compound will receive half credit (5 points).
A student who does not identify the correct functional group will receive no credit (0 points).

*** Instructor evaluation includes the following: coming to class on time, coming to class prepared, maintaining a tidy work space (including the front bench and hoods)*

COURSE RULES & REGULATIONS

Academic Integrity:
Academic dishonesty of any type, including cheating and plagiarism, is unacceptable at Brooklyn College. Cheating is any misrepresentation in academic work. Plagiarism is the representation of another person's work, words, or ideas as your own. Students should consult the Brooklyn College Student Handbook for a fuller, more specific discussion of related academic integrity standards. Academic dishonesty is punishable by failure of the "test, examination, term paper, or other assignment on which cheating occurred" (Faculty Council, May 18, 1954). In addition, disciplinary proceedings in cases of academic dishonesty may result in penalties of admonition, warning, censure, disciplinary probation, restitution, suspension, expulsion, complaint to civil authorities, or ejection. (Adopted by Policy Council, May 8, 1991.)

Students with Disabilities:
If you have a disability, it is the responsibility of the university to provide you with reasonable accommodations. You should first register with Ms. Stewart-Lovell, the Director of the Student Disability Services Center (718-951-5538). Afterward, please provide the laboratory coordinator, Dr. Horowitz, with a copy of your course accommodation form and if necessary schedule an appointment with her to discuss your specific accommodation needs.

Laboratory Drawers:
Please follow the check-in and check-out instructions given by the senior college laboratory technician, Ms. Anna Belyayeva. Make sure that you clean your glassware and bench space everyday (with solvent if necessary) and that you return all your glassware and equipment to your laboratory drawer before you leave. **Make sure you lock your drawer at the end of every lab period.** At the end of the semester, you will be charged for the replacement cost of any missing or broken items.

Note that once you check in to the course, you **must check out** even if you only attend class for one day. Students who fail to check out will be charged a fee of **$50** plus the cost missing or broken equipment. Students who drop should arrange a checkout day with the stockroom. Students who withdraw will checkout on the day designated for checkout for their lab section.

Makeups:
If a student misses a lab, the lab must be made up promptly (ideally with another section that is conducting the same experiment). Lab makeups will only permitted for legitimate reasons (e.g. family emergency, illness, religious holiday, etc.) and students may be required to submit documentation to verify their reasons for absence from laboratory.

If you miss a lab, you must get permission from your lab instructor to makeup the experiment. In order to do this, please pickup a makeup form from the stockroom and ask your instructor to sign it. Then, schedule and arrange your makeup date by contacting the instructor teaching the makeup section (see contact information below). After you complete the makeup experiment, please have the makeup instructor sign your makeup form so that credit can be given to you for having completed the experiment.

Prof. Benoit	Farrah_s_benoit@yahoo.com
Prof. Horowitz	ghorowitz@brooklyn.cuny.edu
Prof. Minnis	mminnis@brooklyn.cuny.edu

Laboratory Safety:
Safety is the number 1 priority in lab. You will be provided with an approved pair of safety goggles. **Wearing goggles at all times in the laboratory is mandatory.** If you are caught not wearing goggles in the lab, you will be asked to leave and you won't be allowed back for that session.

During the first laboratory period, you will receive 2 copies of a hand-out of safety rules. One is for you to keep and the other one is for you to sign and return to your lab instructor. You must read, understand and agree to abide by these rules if you want to take the course.

You must not run heating devices (e.g. hotplates, heating mantles and melting point devices) more than the halfway up their temperature setting unless instructed otherwise by your instructor. Doing otherwise can cause thermometers and other glassware to crack and break and put you at risk of injury.

Exposure to Chemicals:
There is scientific evidence that exposure to laboratory chemicals (especially volatile solvents) during pregnancy increases the risk of birth defects. Any student who has a sensitivity toward chemicals or who may be pregnant is strongly advised to check with his or her doctor to determine if taking this course may pose a hazard to his or her health. A list of chemicals to be used in the laboratory experiments will be made available upon request.

LABORATORY SCHEDULE

Week	Experiment	Reading	Lab Meeting Dates				Report Due Wk
			Mon	**Wed**	**Thurs**	**Fri**	
1	Checkin/Safety	NA	8/29	8/31	8/25	8/26	1
2	Pinacol Rxn	Expt 54B	9/12	9/7	9/1	9/2	4
3	Camphor Red'n	Expt 31B	9/19	9/14	9/8	9/9	5
4	Diol Oxidation	Handout	9/26	9/21	9/15	9/16	6
5	Grignard	Expt 33+33A Tech 7.5, 7.6	**Thurs 10/6**	9/28	9/22	9/23	7
6	Wittig	Expt 41C	10/17	10/6	9/29	9/30	8
7	Michael/Aldol	Expt 39	10/24	10/19	10/13	10/7	9
8	Nitration	Expt 43A	10/31	10/26	10/20	10/21	10
9-10	Unknown 1 **	Expt 58 Tech 13	11/7, 11/14	11/2, 11/9	10/27, 11/3	10/28, 11/4	13
11-13	Unknown 2	Expt 58	11/21, 11/28, 12/5	11/16, 11/23, 11/30	11/10, 11/17, 12/1	11/11, 11/18, 12/2	14
14	**Check-Out, Submit Notebook**	NA	12/12	12/7	12/8	12/9	14

* Handouts can be found on Prof. Horowitz's website:
http://userhome.brooklyn.cuny.edu/ghorowitz

** NMR of Unknown 1 will be conducted on the following dates (week 9):
Mon 11/7, Wed 11/2, Thurs 10/27, Fri 10/28

LABORATORY REPORTS AND NOTEBOOKS

You will be required to submit a prelab and postlab for each experiment. You will also be required to keep a laboratory notebook which you will turn in at the end of the semester.

The instructions below describe what should be included in your prelab, postlab and notebook ***for the first seven experiments.***

Headings - Each prelab and postlab you turn in should have the following information at the top of the page: your name, your instructor's name, the title of the experiment, the date.

Prelabs - Prelabs are due promptly at the start of lab. Write the prelab assignment directly into your laboratory notebook and submit a photocopy to your lab instructor.

Table of Chemicals Used (0.5 pt)
List all chemicals to be used, including solvents. List any hazards associated with each chemical. For reagents only, give the quantity to be used in grams or mL, along with MW, density and moles.

Flowchart of Procedure (0.5 pt)
Provide a diagram or scheme of the procedural steps you will be conducting (see page 466 of your lab manual for an example of a flowchart). Be sure to include specific information such as chemical names, quantities, temperatures, time frames, etc.

Notebooks – Any observations you make and any numerical data you collect should be recorded directly into your notebook in pen. (Data should never be written on scrap paper and later transferred to the notebook.) Notebooks should be legible such that another person can follow what you have done; however they do not need to look perfect. Errors should not be erased or covered over with whiteout.

Postlabs - Postlabs are due one week after completion of an experiment and are due promptly at the start of lab. If a lab report is submitted 1 day late, a 10% penalty will be applied. If a report is submitted more than one day late (up to 1 week late), a 20% penalty will be applied. Reports submitted more than one week after they are due will receive no credit.

Observations (1 pt)
List 2 important physical observations you made. Briefly state why each is significant. Physical observations are things you see or feel. They are not conclusions or interpretations.

Data (1 pt)
Tabulate yield(s), melting point(s) and percent yield(s).

Post-lab Question (4 pts)
Answer the questions found at the end of the experiment.

The instructions below describe what should be included in your prelab, postlab and notebook ***for the unknown experiments.***

Prelabs (1 pt overall) – A prelab report should be submitted each week. The prelab should include only a flowchart of your procedural plan for that day. (No reagent table is required.)

Notebooks – As before, data and observations should be recorded directly into your notebook.

Postlabs (7 pts each) – A separate postlab report must be submitted for each of the two unknowns. **Each student must write his or her report individually – no joint reports with lab partners!** Postlab reports must be typed, although chemical reactions and structures may be handwritten. The postlab report should consist of a table (see example on the following page) in which all the information about each chemical test (the name, procedure, observations, reaction and conclusion) is tabulated horizontally. Chemical tests should be listed in a logical order, preferably in the order in which they were performed. Note that procedures must be written in a *passive, past tense* and that chemical reactions must be depicted for *your specific unknown*.

NMR Analysis (6 pts) – An NMR analysis section must be appended in your postlab report for unknown 1. In the NMR analysis section, you must do your best to identify **every** peak in the NMR spectrum and indicate what proton(s) they correspond to. For every peak, you must discuss how its three properties (integration, chemical shift and splitting) agree or do not agree with your proton assignment and your decision about the identity of your unknown (see sample format below). You must submit a hard copy of your NMR spectrum with your lab report.

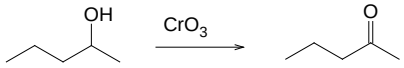
Sample NMR Format (for a molecule with four types of H in it)

	Integration	Shift	Splitting
H_a			
H_b			
H_c			
H_d			

Lab Report

Name *John Doe*
Instructor *Dr. Jones*
Date *April 3, 2013*

Unknown Number *5503* **ID of Unknown** *2-pentanol*

Name of Chemical Test	**Procedure**	**Data or Observation**	**Chemical Reaction (if applicable)**	**Conclusion**
Boiling Point	*NA*	*115-122°C*		
Solubility Tests	*1 drop of unknown liquid was added to 2 mL of solution*	*H_2O - insol* *5%HCl - insol* *5%NaOH - insol* *5%$NaHCO_3$ - insol* *Conc H_2SO_4- sol*		*Compound is aldehyde, ketone or alcohol*
DNPH Test	*10 mL of DNPH reagent were added to 0.10 g unknown. Resulting solution was heated on steam bath for 5 minutes.*	*No precipitate was observed.*	*No Reaction*	*No aldehyde or ketone is present*
Chromic Acid Test	*1 drop of chromic acid solution was added to a solution of 10mg unknown in 1mL acetone.*	*Green precipitate was observed after approximately 30 seconds.*		*Compound is a primary or secondary alcohol.*
Include all other tests e.g. deriv formation				