ORGANIC CHEMISTRY12B – Laboratory

Laboratory Syllabus

Spring 2016 Lab: 42676 TTh 2:30 – 5:20 PM SC2210
Instructor: Dr. Paria Bakhtar

Email: bakhtarparia@fhda.edu Office Hours: TTh 12:00 – 13:00 PM Library, room TBD

This syllabus only covers the lab portion of your course, which is worth 25% of your total grade in 12B. Refer to the syllabus given by Prof. Khnouderchah for info pertaining to the lecture portion of the course.

Lab Materials:

1. ***Textbook*:**
   Gilbert, John C. and Martin, Stephen F.; ***Experimental Organic Chemistry: A Miniscale and Microscale Approach, 6th edition*** (Thomson Brooks/Cole: 2011; ISBN 9781439049143)
   You can use the 5th edition too, but make sure you prepare for the week's experiment as page numbers are different for each edition.
2. 8.5 x 11 or 6 x 9 permanently bound notebook (Any simple notebook is accepted).
3. A scientific calculator that has at least log and exponential functions (will be used in lecture as well).
4. Laboratory safety goggles purchased from the De Anza Book Store. (UVEX Stealth ONLY). Other types of goggles will not be permitted.
5. Latex or Nitrile Gloves available from the bookstore (optional).
6. Optional but highly recommended: Lab coat

Registration and drop policies:

Registration: Enrolment in each section is strictly limited to 30 students. You MUST attend the lab section that you registered - no switching will be allowed under any circumstances.
Waitlist: Add code will first be given in the official wait-list order, and then on a first-come first serve basis.
Drop or withdrawal: YOU have to initiate the drop or withdraw process by the below deadlines
or you will receive a grade based on the work completed. Due to the number of students on waiting list wishing to enroll in this class, any unjustified absences during the first two weeks of class **will result in you being dropped.** Also if you are absent more than **four sessions** without a valid excuse, will also result in being dropped**.** Let me know if you plan to miss class during the first two weeks of class to avoid being dropped automatically.
If you do choose to drop, you must officially check out of your lab locker. Failure to check out of lab by the scheduled check-out date will result in an administrative fee and a block will be placed on your future registration.

Registration Deadline Spring 2016	Last day to add class	Drop class with no record	Pass/fail deadline	Drop class with a 'w'
	4/16/16 (Sat)	4/17/16 (Sun)	4/29/16 (Fri)	5/27/16 (Fri)

Attendance & tardiness, absences and make up policies

Attendance: Attendance is expected for all lab periods. Please be on-time and stay for the duration of the whole class until dismissed. 3 points will be taken off your lab grade if you are over 10 minutes late for class or leave before class is dismissed.

Absences: When you know that you will miss class (even 10 minutes before class), contact me immediately by e-mail and give a brief explanation for your absence. Absences will only be excused for medical emergencies or other emergences (e.g. death in family) with written verification and if I was given proper advanced/reasonable notice for your absence.

Note: TWO or more unexcused lab absences will result in an automatic 'F' for the entire course. Unexcused lab absence results in a '0' report score for the missed lab, even if you only missed one day of a multi-day lab.

Tardiness: No extra time will be given if you arrived late to an exam or final. If you are not present by the time the lab lecture is finished, you will NOT be allowed to perform the experiment and will receive a '0' for the lab report score for that lab. TWO or more '0' lab report scores will result in an automatic 'F' for the entire course.

Make-up policies: No missed work could be made-up with unexcused absences.

In the cases of excused absences:

- Pre-labs: You must turn in the completed pre-lab as soon as you return to class.

- Labs: Missed labs cannot be made up. I may supply you with data necessary to complete the lab report, or your grade may be based on your average lab report scores.

- Lab exams & finals: quizzes, exams and finals cannot be made up.

Grades

The lecture portion of these course will be 75% of your grade and the lab will be 25%.

Your lab grade is 25% of your total Chem 12B grade.

*Please note If you score less than 60% on the lab portion of the class, Or you have two or more '0' lab report scores, you will receive an 'F' for the entire 12B class, regardless of your performance in the lecture portion of the course.

Task	Point
Lab report (100 points each)	700
Pre-lab quiz (15 point each)	105
Lab final	195
Total	1000

Grading scale			
Grade	**Percentage**	**Grade**	**Percentage**
A+	98-100	C+	75-78
A	92-97	C	69-74
A-	89-91	D+	65-68
B+	85-88	D	62-64
B	82-84	D-	59-61
B-	79-81	F	0-58

Curves/ Extra Credit: No curves or extra credit will be given in the lab portion of this course.

Report due time and late penalties: All lab reports (due in lab) are due at the beginning of class (2:30 pm) on the dates stated in the schedule (see below). Reports are considered late if it's not turned in/ emailed by 2:30 pm. *20% of the total grade will be deducted for each 24 hours that the lab report is late.*

Lab Schedule Spring 2016

Week	Date	Lab topic	Theory (page #)	Procedure (page #)	Report due
1	4/5	Check-in and intro	1-89		
	4/7	NMR/IR Spectroscopy	242-261 262-301		
2	4/12	Lab 1: Oxidation of an alcohol (part A)	585-593	593-595	
	4/14	Lab 1: Oxidation of an alcohol (part A)			
3	4/19	Lab 2: Reduction of 9-Fluorenone	621-624	651-652 653	
	4/21	Lab 2: Reduction of 9-Fluorenone			Lab 1
4	4/26	Lab 2: Reduction of 9-Fluorenone			
	4/28	Lab 3: Wittig Reaction (Part A)	673-677	678-679	
5	5/3	Lab 3: Wittig Reaction (Part A)			Lab 2
	5/5	Lab 4: Grignard Reaction (Part A)	715-719, 725-727	719-720, 728-731	
6	5/10	Lab 4: Grignard Reaction (Part A)			Lab 3
	5/12	Lab 4: Grignard Reaction (Part A)			
7	5/17	Lab 4: Grignard Reaction (Part A)			
	5/19	Lab 5: Kinetics vs. Thermodynamic Control (Part A, B, C and E)	443-448	448-450	
8	5/24	Lab 5: Kinetics vs. Thermodynamic Control (Part A, B, C and E)			Lab 4
	5/26	Lab 5: Kinetics vs. Thermodynamic Control (Part A, B, C and E)			
9	5/31	Lab 5: Kinetics vs. Thermodynamic Control (Part A, B, C and E			
	6/2	Lab 6: Diels Alder Reaction (Part A)	421-425	426	
10	6/7	Lab 6: Diels Alder Reaction (Part A)			Lab 5
	6/9	Lab 7: Friedel-Crafts Acylation	499-500, 511-513	513-514	
11	6/14	Lab 7: Friedel-Crafts Acylation			Lab 6
	6/16	Lab check-out + Lab final Lab			Lab 7

Lab safety

Lab safety is EXTREMELY important! You MUST abide by all rules on the safety agreement ontract at all times (attached at the end). Violation may result in a point deduction, a dismissal from lab (which will be a '0' for that lab report) or expulsion from the course (and a "F"). Lab cleanliness is also very important - lab points may be deducted for any mess left behind.

Lab notebook format

Your lab notebook should include a table of content at the beginning, one that you update after every experiment. It should be followed by experiments, and each experiment should contain:

1. **Items listed in pre-lab:** see below. Update the procedure as needed during the experiment.
2. **Observations**: Note any color changes, bubbles, instrumentation problems, etc. in the right hand column next to the procedural steps.
3. **Data and calculation**: Record the data in the data table written in pre-lab and complete all the calculations necessary in this section of the notebook. If graphs are needed, attached them inthe notebook and describe how you obtained them.

Pre-lab format

Pre-lab: Before each new experiment, you are required to prepare a pre-lab. You will complete the entire experiment based only on the info written in your pre-lab. No textbook or electronic devices will be allowed in class for referencing the procedure.

Pre-lab quiz: There will be a pre-lab quiz on the first day of every experiment. You will be able to use your pre-lab to help complete the quiz. You will be banned from the experiment if you scored below a 60% on the quiz - which will result in a '0' for that lab report.

General notes: Always write in **pen** and record any data directly into the notebook (-5 point for every violation). Never write in pencil, erase, use a white-out or completely scratch something out in your notebook – use a single line through the text if correction is needed. Write in third person and passive voice!

The format of the pre-lab is as follows:

1. Title of the experiment and date it is performed.
2. Abstract: one or two sentences summarizing the main purpose of the experiments. Draw out the scheme of any reaction performed as well.
3. Reagent and product table: In a table, list the names/structure, molecular weight, stoichiometric ratio, moles and grams/volume used for each reactant and product in the experiment (find the theoretical yield for the products).
4. List of chemical hazards: list any important safety information about the chemicals you are using in your experiment. If the info wasn't already in the experimental procedure, write down the compound's name and leave a space for filling in the info when I talk about it in lab lecture. You may combine this information in the table for part 3.
5. Chemical disposal: for each chemical you are using, list the appropriate waste container for its disposal (ie. acidic aqueous, basic aqueous, or organic). If you are unsure, write down the compound's name and leave a space for the info to be filled in during lab lecture. You may combine this information in the table for part 3.
6. Procedure: rewrite the full experimental procedure in your own words – write with enough detail so that you can run the whole experiment with only what you wrote in your lab notebook. Leave a margin by your procedure to record any deviations from the planned procedure and observations. You do not have to include any theory or any of pre-lab questions (if applicable). Flowcharts are encouraged, as drawings will help to visualize the procedure.
7. Data table: create a table for expected data to be recorded in the experiment

Lab report format

A formal lab report will be required for all 7 of the experiment. These reports must be typed - no hand-written report will be accepted. It must be written in third person and passive voice with correct sub/superscript notations (ie. H_2O, not H2O). The format is as follows:

1. Title: Include the title of the experiment at the beginning of the report.
2. Author Name: Your name.
3. Acknowledgement: If you had a lab partner, acknowledge their contribution in detail here.
4. Abstract: State the key quantitative results that you are seeking in the experiment and draw the structures of the chemical reactions competed here.
5. Discussion/Conclusion: In 1-2 paragraph, discuss the theory of the experiment performed. Then summarize the conclusions that you've reached for your experiment in 1-2 paragraphs; reference any data to support your conclusion when necessary. Also include an explanation of any sources of errors that might explain why your results are different from the known or expected values.
6. Supporting information:

   Procedure: Reference the page numbers of the procedures in your lab notebook - no need to retype the procedure.

   Data table: List all the data collected in the experiment in a table.

   Calculation: Show any calculations that you've completed. For each unique kind of calculation, you must type out (once per unique calculation):

   1) The general mathematical formula (ie. definition without numbers)
   2) One example of the equation substituted with actual data.

   If the calculation is repeated multiple times, the rest of the results may simply be tabulated after the formulas.

   Spectra/graphs: Attach any spectra or graphs obtained in here. Graphs have to be completed with a computer program (hand-drawn graphs will not be accepted)

You must complete the lab report, along with all the calculations and analyses, on your own. Sharing data is ok, but sharing anything else will constitute as plagiarism (see below).

Conduct policy

Academic Dishonesty: As a student at De Anza College, you are bounded by the Academic Integrity policy as outlined in the De Anza College catalog at all times (see http:// www.deanza.edu/studenthandbook/academic-integrity.html). Any violation may result in expulsion from the course, a grade of "F" for the course and a referral to the dean of PSME. Collusion, if proven, will result in each student receiving the same penalty. Please ask me if you are ever unsure about the policy.

Conduct in class: You are also bounded by the Student Code of Conduct. I will not tolerate any disruptive or abusive behavior towards myself or any student in the class, and if you do so, you may be dismissed from class/ reported to the dean of student development for disciplinary action. Use electronic devices, specially cellphones and headphones will be inhibited in the lab. Other than pre-approved calculators & translators, no devices can be used during quizzes/exams.

Lab emergency procedures

You must inform me immediately in the case of any accidents, spills or injury.

• **Spilled something**? Report it to me immediately and I'll guide you through the cleanup.

• **A chemical splashes in your eye**? Report it to me immediately, and then flush your eyes at an eyewash station as directed (usually for 15 minutes straight).

• **Splashed a chemical on yourself?** Report it to me immediately and then, unless otherwise directed, rinse the affected skin with large quantities of water for 15 minutes straight.

• **Splashed a large quantities of a hazardous chemical on yourself?** Report it to me immediately and then, if advised, use the emergency chemical shower. You may be forced to remove chemically contaminated clothing (so keep an extra set of clothes in your car if possible).

• **Fire?** Report it to me immediately! Don't try to put it out yourself – water may worsen chemical (metal) fires or electrical fires. Fire alarms are located in all lab rooms.

• **Your clothes or hair caught on fire?** Use the safety shower immediately and alert me ASAP. If this is not possible "stop-drop- and –roll."

• **Earthquake?** Step away from all lab equipment, duck under a lab bench or door frame, and cover your head. Do not exit the building during an earthquake as exit doors may contain glass or be near windows, and tiles or debris may fall from the roof. Once the quake passes, gather only vital personal possessions and evacuate to the designated area.

• ***Emergency phones***: If directed (or deemed necessary), pick up any campus phone an dial ***911***, or dial ***(408) 924-8000*** to reach police in case of emergencies. For non-emergencies, dial ***(650) 949-7313.***

Special accommodation:

If you have a physical or other disability, many accommodations and services are available through Disability Support Programs & Services (in SCS). Please contact DSP&S for a TAV form if you require academic accommodation on assessments (ie. additional time, a reduced-distraction environment, the use of alternative media/assistive technology, etc.). No accommodation will be given otherwise.