

SYLLABUS FOR CHEMISTRY 2182 (Fall 2011)
ORGANIC CHEMISTRY LABORATORY 2

Section	Briefing	Lab	TA	Professor	Section	Briefing	Lab	TA	Professor
001	114 CRB	208 CPB	TBD	TBD	004	114 CRB	208 CPB	TBD	TBD
002	315 SH	208 CPB	TBD	TBD	005	324 SH	208 CPB	TBD	TBD
003	114 CRB	208 CPB	TBD	TBD	006	114 CRB	208 CPB	TBD	TBD

Office Hours: Dr. Frank Foss (CRB 202, Tel. 817-272-5254, e-mail: ffoss@uta.edu), Dr. Jongyun Heo (351 CPB, Tel. 817-272-1076, e-mail: jheo@uta.edu), Dr. Subhrangsu Mandal (349 CPB, Tel. 817-272-3804, e-mail: smandal@uta.edu) and Dr. Roshan Perera (CRB 102, Tel. 817-272-9067, perera@uta.edu) are the coordinators for CHEM 2182. Dr. Foss' office hours are 11:00 AM - 12:00 PM, Monday and Wednesday. Dr. Heo's office hours are 12:30-1:30 PM, Tuesday and Thursday and by appointment. Dr. Mandal's office hours are 11:00 AM to 12:30 PM, Tuesday and Thursday and by appointment. Dr. Perera's office hours are 10:00-11:00 AM, Tuesday-Thursday. Information about various aspects of CHEM 2182 will be available on the following web site: (<http://www2.uta.edu/chemistry/Classes.htm>).

Enrolling in 2182: Students enrolled in CHEM 2182 must have obtained at least a C for CHEM 2181 and should also be enrolled in CHEM 2322 or have prior credit for CHEM 2322 or an equivalent course. Others will be dropped from 2182. Students enrolling in 2182 with the intention of replacing a previous CHEM 2182 grade must declare their intention to do so at the registrar's office by the **census date (September 12)** for this semester. If you are dropped from this class for non-payment of tuition, you may secure an Enrollment Loan through the Bursar's Office. **You may not continue to attend class until your Enrollment Loan has been applied to outstanding tuition fees.**

Purpose: This laboratory course is intended to familiarize you with many of the common procedures and techniques for preparing, identifying, and purifying organic compounds. You will also gain some practical knowledge of the use of spectroscopy in identifying organic unknowns. On completion of this course it is expected that you will:

- know how to correctly assemble and operate common laboratory glassware and equipment required for the synthesis, purification, and identification of organic compounds.
- demonstrate habits of careful workmanship in the laboratory, including skills of observation, measurement, and record-keeping.
- perform laboratory work in accordance with accepted regulations with due regard for your own and others' safety.

Laboratory Text: *Experiments for Organic Chemistry II*. Please read the PREFACE of the manual **prior** to coming into the lab for the first time. You should read and be familiar with all of the assigned experiments **before** they are scheduled to be performed. You should also complete the appropriate pre-lab exercises in your notebook **before** starting the experiments. You will be taking a brief quiz **before** starting an experiment. You will not be expected to answer questions or do any procedures involving spectroscopy, i.e. NMR and IR, this semester.

Required Lab Attire: *READ THIS INFORMATION VERY CAREFULLY!!!* You will be exposed to hazardous chemicals in chemistry lab. Certain personal protective equipment is necessary to protect your body. You will not be allowed to attend lab if you are in violation of the following rules. If you are not dressed appropriately, you will need to leave the lab. *All missed lab work will count as zero!*

- Goggles, gloves and aprons are provided and are required at all times.
- Shoes that cover the entire foot are required at all times. No sandals, mocs, Crocs, etc, even with socks. *Absolutely no exceptions will be made to this guideline. Warnings will not be issued.*

3. Long pants and sleeves are highly recommended.
4. Long hair should be tied back and secured from falling.
5. No musical or other entertainment devices may be used in chemistry lab at any time.
6. Cell phones are not permitted in lab and must be put in your bag before you enter lab.

Mandatory Online Safety Training: Students registered for this course must complete the University's required "Lab Safety Training" prior to entering the lab and undertaking any activities. Students will be notified via MavMail when their online training is available. Once notified, students should complete the required module as soon as possible, but no later than their first lab meeting. Until all required Lab Safety Training is completed, a student will not be given access to lab facilities, will not be able to participate in any lab activities, and will earn a grade of zero for any uncompleted work.

1. You should have received an email from the UTA Compliance Department. Click on the link in the email (or navigate to <https://training.uta.edu> for the login page).
2. Log on using your network log-on ID and password (what you use to access email). If you do not know your NetID or need to reset your password, visit <http://oit.uta.edu/cs/accounts/student/netid/netid.html>.
3. The available courses for completion will be listed. For Chemistry 2182, complete the course entitled 'Student Lab Safety Training'
4. Go to 'Training I've Completed', and print this displayed page for your TA. Verify that it shows clearly your name, that the training is completed/passed and the date when the training was completed. If you have just completed the training but it is not updated on the 'Training I've Completed' page, try the training again (you should get to the Certificate page). If this does not work, call the training helpline at 817-272-5100.
5. If you did not receive the training email and you have not already completed the training you will need to contact the training helpline (817-272-5100) or email compliance@uta.edu.
6. Students who have not completed the training by census date may be dropped from the lab (and consequently the lecture).

Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e. through next August) for all courses that include a lab. If a student enrolls in a lab course in a subsequent academic year, he/she must complete the required training again.

All questions/problems with online training should be directed to the University Compliance Services Training Helpline at 817-272-5100 or by emailing compliance@uta.edu.

Notebook: A **hard-bound notebook** (not spiral-bound) is required. The notebook should be kept in **ink**. The pages should be numbered sequentially, and there must be a table of contents at the beginning. Each experiment must include the date the work is done, a title, and a main equation or object of the experiment.

THE FOLLOWING ITEMS SHOULD BE WRITTEN IN THE NOTEBOOK BEFORE COMING TO THE LAB:

1. Title of the experiment and date.
2. Balanced equation(s) for any reactions.
3. Data for all reactants: molecular weights, moles and grams/volume used, physical constants (mp, bp, density etc.) calculation of limiting reagent, and the major hazard class of the material.
4. Sketch and names of apparatus used in experiment.
5. **OUTLINE THE EXPERIMENT IN SUFFICIENT DETAIL THAT THE EXPERIMENT CAN BE CONDUCTED WITHOUT YOUR LAB TEXT.** Carefully note items related to safety. Include a

separation scheme for work-up of the product where appropriate. **Each experiment must be conducted from the outline you have written in your notebook.**

6. Calculate the theoretical yield of your product (show calculations).

7. Answer assigned questions.

DURING THE LAB:

8. Record what you do and observe during the experiment. Weights are to be recorded using the Tare + compound - Tare=weight, unless you use an automatic tare. If using an automatic Tare, record this in your notebook. The boiling point or melting point **range** is to be recorded.

AFTER THE LAB

9. Calculate the percent yield (show all calculations).

10. Conclusion: Comment about or discuss any part of the experiment you think appropriate (e.g., an explanation of why the yield is too low, a suggestion for improving some part of the experiment, etc.).

Evaluation:

QUIZZES: A SHORT QUIZ WILL BE GIVEN ON EACH EXPERIMENT AND ASSOCIATED TECHNIQUES PRIOR TO THE BRIEFING FOR THE EXPERIMENT.

PRE-LAB EXERCISES MUST BE FINISHED AND STAPLED IN YOUR NOTEBOOK BEFORE YOU BEGIN THE EXPERIMENT.

Notebooks: Notebooks will be taken up for grading (unannounced) two or three times during the semester. The TAs check periodically to insure you are complying with 1-7 above.

Grading: Practical I (15%), Practical II (15%), Unknowns (15%), Other Experiments (15%), Notebook (Pre-lab Exercises are 25% of the notebook grade) (15%), Quizzes (10%), Final Exam (15%). Course grades: 90% or > - A, 89-80% - B, 79-70% - C, 69-60% - D, < 60% - F. NOTE: Numerical grades are normalized between individual sections before assigning a letter grade.

Make-ups: allowed only for practical experiments and only for students who have a documented excused absence. Make-ups are not allowed for non-practical experiments. If a non-practical is missed, there is a deduction of 10% of the 15% designated for other experiments. Missing more than one experiment of either type will result in an incomplete or failing grade in the course. There will be a 15 point deduction for any practical that is started over.

All equipment on temporary loan from the Stockroom must be returned the same day it is checked out.

Dropping the Course: If you decide to drop or stop attending the lab, YOU must:

- Contact the Chemistry Stockroom, 112 CPB, to check out on or before the scheduled check-out date.
- See your advisor to drop the class.

Checkout: Students must checkout on the assigned day, unless they have a legitimate, verifiable excuse. Students failing to check-out on the assigned day will receive a point penalty of 10% of the 15% allotted for other experiments. If check-out is still not complete one week after the assigned date, the stockroom will check out the student and assess a \$30 check-out fee, a \$30 key fee, and the cost of any broken, missing or excessively dirty glassware. All fees are non-refundable once they have been billed.

UTA will bill your account and it will have to be paid before you will be allowed to register for the next semester. This will show up on your tuition bill as “chemical breakage.”

Schedule:

- Aug 29-31* After briefing students check into the laboratory.
- Sept 1-2* Instructor: Discuss safety rules. Discuss lab routine and notebook form in the classroom. In the laboratory, demonstrate the use of the fire extinguisher, eyewash, and safety shower.
- Students: Reread pp. 1-25 from your lab text. Check equipment and replace from the Stockroom any missing or damaged pieces. Remember, you are responsible for equipment being in good condition when it is checked back in at the end of the semester.
- Sep 6-10* Polymers. Solution Polymerization of Styrene and Nylon 6,6. Handouts **Section 001 will do this experiment on Nov 21**
- Sep 12th** Census Day
- Sep 12-16* The Diels-Alder Reaction.
- Sep 19-23* Preparation of Grignard Reagents and Preparation of 4-Chlorobenzhydrol.
- Sep 26-30* Complete 4-Chlorobenzhydrol experiment. Do not discard your product, as you will need it as a precursor for the next experiment.
- Oct 3-7* Preparation of 4-Chlorobenzophenone.
- Oct 10-14* **Practical I.** Nitration of Methyl Benzoate. Handout. There should be **no communication** with the other students in the lab. Direct all questions to your TA.
- Oct 17-21* Complete Practical I. Weigh your product, calculate the yield, and determine the m.p. Turn the product in to your TA.
- Oct 24-28* The Aldol Condensation. Reaction of Piperonal with Pinacolone.
- Oct 31 - Nov 4* **Practical II.** The Horner-Wadsworth-Emmons Reaction. Work individually. There should be **no communication** with other students in the lab. Direct all questions to your TA.
- Nov 5** Last day to drop a course.
- Nov 7-11* Complete **Practical II.** Work individually. Determine the weight and yield of your sample and turn it in to your instructor.
- Nov 14-18* Begin Experiments on Identifying Organic Compounds. You will be given two unknowns to identify. Each will either be an alcohol, aldehyde, amine, carboxylic acid, ketone, or phenol. Work individually. All unknowns are listed in the *Handbook of Tables for Organic Compound Identification*. Determine the solubilities and physical constants of your unknowns. Report the preliminary classification of both unknowns to your TA for verification. When these have been correctly reported, IR and NMR spectra will be issued to you.
- Nov 21** Only **Section 001** meets to do Polymer experiment.
- Nov 22** Excused practical experiments maybe made up *Nov 22nd*.

Nov 28-30 Complete Identifying Organic Compounds

Dec 1-2

Dec 5-9 All sections check out.

Dec 15 Final Examination, 5:30-8:00 p.m. Either Room 100 or 103 Science Hall. Exam will emphasize procedures and techniques. Bring a Scantron form 882 ES to the examination.

NOTE: BRING YOUR LAB NOTEBOOK TO THE EXAM!

Students with Disabilities: Students who need an accommodation based on disability should arrange to meet with the laboratory coordinator in his office during the first week of the semester to see that they are appropriately accommodated.

Students who are Pregnant: For students who are pregnant, it is recommended by the Chemistry and Biochemistry Dept. that you do not enroll into a chemistry lab at this time. If you become pregnant during the semester, we recommend dropping the course as soon as possible; and special provisions will be made to assist you in finishing the course at a later date. *Please see your faculty instructor for assistance.*

Academic dishonesty: UTA considers academic dishonesty a completely unacceptable mode of conduct, and the University will not tolerate it in any form. Academic dishonesty includes (but is not limited to) cheating, falsification of data, plagiarism, and contracting/collusion with others to do your test or do your work. Cheating is the use or acquisition of information (data, constants, formulas, textual material, etc.) from either unauthorized sources or in an unauthorized manner. Examples include but are not limited to

- a) exchanging information during a test or quiz.
- b) looking at another student's paper during a test or quiz.
- c) bringing information in any form into a test or quiz other than personal knowledge. This includes written notes (crib sheets) and digitally stored information (formulas, constants, textual, etc.)
- d) looking at a book or any other unauthorized source during the test or quiz.
- e) accessing information by any electronic means (cellular phones, pages, personal stereos, etc.) **None of these items are to be brought into examinations.**
- f) processing data or information in an unauthorized manner using a programmable calculator or computer.

In the event that a test proctor determines that a student is cheating, the following actions will be taken:

- 1) the student will be notified and, if the situation merits, asked to explain his/her actions.
- 2) the source of the unauthorized information will be removed during the remainder of the test period and returned to the student following the test, if appropriate.
- 3) the student may be removed to a different location to complete the test.
- 4) calculator/computer memory will be cleared of the stored information and programs as appropriate. In some cases the proctor will need to temporarily examine the calculator to verify unauthorized use. The calculator will be returned to the student to finish the test.
- 5) a record of the events and actions surrounding the alleged act of cheating will be submitted to the Associate Vice Provost for Student Affairs for further action. See Undergraduate Catalog for further information.

Following is a statement from the University policy on cheating. *"Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the University."*