CHEMISTRY 2181 Syllabus (Spring 2017)

ORGANIC CHEMISTRY LABORATORY 1

Sections and TA information:

Section	Day/Time	Briefing	Lab	Teaching Assistant	Email (@mavs.uta.edu)
001	Mon, 1 PM	SH 205	CPB 203	"TJ" Olantuji Ojo	olatunji.ojo
002	Tues, 1 PM	SH 315	CPB 203	Jonathan Lefton	jonathan.lefton
003	Wed, 1 PM	SH 105	CPB 203	Anurag Poyil	anurag.noonikarapoyil
004	Thurs, 1 PM	SH 205	CPB 203	Srikanth Medipelli	srikanthreddy.medipelli
005	Tues, 8 AM	SH 315	CPB 203	Jonathan Lefton	jonathan.lefton
006	Tues, 6 PM	SH 315	CPB 203	Anurag Poyil	anurag.noonikarapoyil
007	Wed, 6 PM	SH 205	CPB 203	TJ Olantuji Ojo	olatunji.ojo
008	Thurs, 6 PM	SH 315	CPB 203	Srikanth Medipelli	srikanthreddy.medipelli

SH = Science Hall, CPB = Chemistry and Physics Building

Instructors: Sections 001-008: Dr. Frank W. Foss (202 CRB, 817.272.5245, ffoss@uta.edu).

Office Hours: Dr. Foss' Office hours are 4-5 PM on Monday and Wednesdays, or by appointment.
TA and other important information will be available on Blackboard (http://elearn.uta.edu).

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php. Emails from personal email accounts, and emails that can be answered by reading this syllabus, may not receive a response. Please read the syllabus before contacting your TA, faculty, or staff.

Pre-requisite: CHEM 1442 or equivalent, with a grade of C or better. **Co-requisite:** Students enrolled in CHEM 2181 must also be co-enrolled in CHEM 2321 or have prior credit for CHEM 2321 or an equivalent course. Others will be dropped from CHEM 2181. Students enrolling in CHEM 2181 with the intention of replacing a previous CHEM 2181 grade must declare their intention to do so at the registrar's office by the **census date** 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.**

Learning Outcomes: This course will familiarize you with many common techniques for preparing, identifying, and purifying organic compounds. On completion of this course it is expected that you will able to:

1. Communicate and practice safe laboratory skills in accordance with EH&S guidelines.
2. Describe, assemble, and operate common laboratory glassware and equipment.
3. Detail how specific techniques achieve goals in chemical synthesis, purification, and identification.
4. Use chemical theory to correctly describe lab techniques, phenomena, and observations.
5. Work well independently and in small groups. Be organized, self-directing, and contribute significantly to each experiment.
6. Demonstrate habits of careful workmanship in the laboratory, including skills of observation, measurement, and record-keeping.
7. Synthesize information, think independently, express reasoning in discussion and on exams.

REQUIREMENTS:

Required Text: *Experiments for Organic Chemistry I*. Please read the PREFACE of the manual **prior** to coming into the lab for the first time. **Before** arriving at the briefing room, you **must**: (1) read and understand the assigned experiment scheduled for that day; (2) complete the appropriate pre-lab exercises; (3) prepare your notebook as instructed; and (4) complete an open-notebook online quiz (mandatory for entrance to laboratory).

Required Online Safety Training: **Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities.** Once completed, Lab Safety Training is valid for the remainder of the same academic year (through the following August) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned. 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 zero for any uncompleted work.

1. Login to **Blackboard** at https://elearn.uta.edu with your NetID and password.
2. Under **My Blackboard** tab, click **Lab Safety Training**.
3. Click **Welcome** from the left pane to start and follow the instructions.

Questions/problems with online training should be directed to the Blackboard Support Center either online or by calling **1-855-308-5542**. General questions about the Lab Safety Training, including content should be directed to the Office of Environmental Health and Safety at **(817) 272-2185** or ehsafety@uta.edu

Required Lab Attire: IMPORTANT! You will be exposed to hazardous chemicals in this class. Personal protective equipment (PPE) is necessary to protect your body. You will not be admitted into the lab if any of the following guidelines are not met. If you violate any of the following guidelines, you may be asked to leave the lab. All missed work will receive zero credit.

1. Goggles, gloves and aprons are provided and are required at all times.
2. Shoes that cover the entire foot are required at all times. No sandals, 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. Contact lenses should not be worn in the lab.
5. Long hair should be tied back.
6. No musical or other entertainment devices may be used in chemistry lab at any time.
7. Cell phones are not permitted in lab and must be turned off and put away before you enter the lab.

Required Notebook: A **Laboratory Notebook** (with hard- or sewn-binding, 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, a title, and a main equation or object of the experiment.

ASSESSMENT:

Grading: Practical I (20%), Practical II (20%), Other Experiments (20%), Notebook (15%, pre-lab exercises are 25% of the notebook grade), Online Quizzes (10%), Final Exam (15%). Each section will be assigned letter grades individually to normalize grading between TA's.

Quizzes *will be given for each experiment, and will be administered via blackboard. Your quiz will be available for 24 hours, and must be completed one hour before your briefing; failure to comply will result in being prohibited from the lab for that experiment and they will receive a zero for that work.*

Pre-lab Questionnaires must be completed before you attend the briefing. Turn in your completed pre-lab upon entering your briefing. When returned to you, staple them into your notebook, along with the related experiment. You may wish to have access to these questionnaires during the open notebook portion of the final.

Final Examination: There will be a final examination for this course. See below and details on Blackboard

Laboratory Reports: Laboratory Reports will be completed for each laboratory, turned in at the TA's instruction, and graded as part of the student "Other Labs" grade.

Notebooks will be taken up for grading (unannounced) two or three times during the semester. Your notebooks will also be examined by the TAs periodically to insure you are complying with the 10 steps listed below.

Notebook Content (See example on Blackboard, but carefully read the following.):
Before the experiment:

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 and calculation of limiting reagent. **Look up and note major hazard classes** for each reagent used in the experiment, which can be found on each chemical's Material Safety Data Sheet (MSDS) online.
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**. Note items related to safety. Include a scheme for purification of the product, as needed. **Each experiment must be conducted from the outline you write in your notebook. No Lab Manuals are allowed during the performance of any laboratory experiment.**
6. Calculate the theoretical yield of your product (show calculations).
7. Answer assigned questions.

During the experiment:

8. Record what you do and observe during the experiment. Weights are to be recorded using the method, 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 experiment:

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.).

OTHER POLICIES:

Attendance: *At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance.* As the instructor of this section, and because performing laboratory work (in a safe manner) is mandatory to attain the stated Student Learning Objectives, **you are required to attend all Briefings and scheduled Laboratory Sessions**. **You may leave the laboratory only as instructed or permitted by your TA.**

Make-up Policy:

A. Non-practical experiments: Not Available. If a non-practical is missed and not excused, 10% of your course grade will be deducted. If two experiments are missed, either a failing grade (F, with unexcused absences) or an incomplete (I, with excused and documented absences) will be earned for the course. If you believe you have an excused absence, **you must obtain documentation** and discuss this with your faculty instructor in a timely manner.

B. Practical experiments: On 4/25, make ups with no point deduction are only allowed for Practical I or II, and only for students who have an excused and documented absence. **Practical experiments may be repeated on this day** with a 15-point deduction (85% max), for studnets who wish to improve their

grade. Practical Make-ups and Re-do's **must be scheduled by turning in a completed Request Form to Dr. Cleaver (217 CPB, wcleaver@uta.edu, 817.272.3849) by 4:30 PM on Thursday April 20st.**

C. Final Exams: Students with documented excuses for rescheduling the final examination must obtain approval for a make up examination **prior to the drop date**. Please see your faculty advisor regarding conflicts with the final exam. **Travel is not an excuse for missing the scheduled final examination.**

Equipment on temporary loan from the Stockroom must be returned the same day it is checked out. Broken, missing, or excessively dirty glassware must be replaced at cost to the student it was assigned to.

Check-out is completed on the assigned day, unless students have a legitimate, documented excuse. Students failing to check-out on the assigned day will receive a point penalty of 10% from their final grade. If check-out is still not complete one week after the assigned date, the stockroom will check out the student and assess a check-out fee, a key fee, and the cost of any broken, missing or excessively dirty glassware. **Your account will be billed (chemical breakage) and it will have to be paid before you will be allowed to register for the next semester.**

Fees are non-refundable once they have been billed.

Drop Policy: Students may drop or swap (concurrently add and drop a class) classes through self-service in MyMav from the beginning of the registration period through the late registration period. ***After the late registration period, students are not able to drop a course online and they must see their academic advisor to drop a class or withdraw.*** Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. ***Students will not be automatically dropped for non-attendance.*** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/ses/fao).

> ***Lab Checkout****: If you drop the 2181/2182 lab, you must contact the Chemistry Stockroom, 112 CPB, in order to check out on or before the scheduled check-out date.*
>
> ***Paperwork:*** *When dropping the course,* ***you*** *are responsible for seeing that all of the proper paperwork is completed and submitted to your academic advisor. If this paperwork is not completed, you will receive a letter grade corresponding to your earned grade, including zeros for any missed work.*

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364, or **Counseling and Psychological Services, (CAPS)** www.uta.edu/caps/ or calling 817-272-3671. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Students and Pregnancies: It is recommended that pregnant students do not enroll into a chemistry lab. If you become pregnant during the semester, we recommend dropping the course. Special provisions will be made to

assist you in finishing the course at a later date. ***Please see your faculty instructor for assistance.***

Title IX: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit* www.uta.edu/titleIX.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code.

> UT ARLINGTON HONOR CODE:
>
> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
>
> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. **Student work that violates the Honor Code will receive zero credit.**

Violations include (but are 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:

1) **turning in work that is not your own, whether copied from another student or online source.**
2) exchanging information during a test or quiz.
3) looking at another student's paper during a test or quiz.
4) 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.)
5) looking at a book or any other unauthorized source during the test or quiz.
6) accessing information by any electronic means. **No electronic devices (e.g. computers, phones, watches, glasses, of any type) are to be used during examinations without permission.**
7) processing data or information in an unauthorized manner using a programmable calculator or computer, i.e., there should be no use of a computer program. You are only permitted to use simple calculators that perform arithmetical, logarithmic, and trigonometric functions.

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.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Schedule:

Jan 16th	***Martin Luther King Jr Day*** *Section 001 does not meet, but should read the next entry.*
Jan 17-19	Lab Briefing and Equipment Check out. Instructor: *Discuss syllabus and identify the fire extinguisher, eye wash, and safety shower in lab.* Students: *Check out equipment and replace any missing or damaged pieces from the Stockroom. Remember, you are responsible for equipment being in good condition when it is checked back in at semester's end.* **Section 001 will do lab check in on Jan 23rd, prior to TLC experiment.**
Jan 23-26	**Separation of Spinach Pigments by TLC**. Work in groups of four--one solvent per student. (**Section 001** checks out lab equipment, prior to experiment.)
Jan 30-Feb 2	**Determination of Melting points**
Feb 1	***Census Date***
Feb 6-9	**Recrystallization**
Feb 13-16	**Distillation and Gas-Liquid Chromatography (GC)**
Feb 20-23	**Separation of a Mixture by Acid-Base Extraction**
2/27-3/2	**a.) Practical I. Resolution of Racemic 1-phenylethylamine.** Students may **not communicate** with other students and may not use their manuals during this lab. Direct only safety-related questions to your TA. **b.) Library Exercise:** Attend a presentation on chemical literature – details will be provided closer to this presentation. Your TA will provide specific instructions.
Mar 6-9	**Complete Practical I.** Determine the weight of your product, compute the %-yield and determine the specific rotation.
Mar 13-18	***Spring Break***
Mar 20-23	**Cyclohexene--Dehydration of Cyclohexanol**
Mar 27-30	**Oxidative Cleavage of Alkenes**
March 31	***Last day to drop. (No final exams will be rescheduled after this date, except for emergencies.)***
Apr 3-6	**Practical II.** S_N1 Reactivity There should be **no communication** with other students in the lab. Direct all questions to your TA.
Apr 10-13	**Complete Practical II.** Compute your yield and turn in your product to your instructor.
Apr 17-20	**Bromination of (*E*)-cinnamic acid.**
Apr. 25.	**Approved practical experiments** will be performed on **Apr 25th** (either AM, PM, or EVE). Requests for practical make-up or redo must be made by Thursday, April 20th.
May 1-4	Check out of laboratory during class time. **All broken, lost, or excessively dirty equipment must be replaced.**
May 11th**	**Final Departmental Examination,* Thursday May 11th, 5:30-8:00 p.m.** , Room TBA ****Record this exam date in your calendar/schedule immediately.****
	Bring a SCANTRON form 882 ES, pencil, and your LAB NOTEBOOK to the examination.