

CHM 126: Introductory Organic Chemistry Laboratory - Syllabus for Spring Semester 2023

Laboratory Coordinator

Name: George W. Dombi, PhD

Email: gDombi@uri.edu

Office Hours: by appointment

Office: Beupre 115

Office Zoom: 267-844-1472

Office phone: (401) 874-2384

Laboratory Instructors (all are graduate students)

Names and email address:

Dennis Byrd - dennis_byrd@uri.edu sections 010, Friday, and 012, Friday.

Qiwen Chen - qi_chen@uri.edu sections 001, Monday, and 003, Monday.

Malesha Fernando - mfernando@uri.edu sections 005, Wed, and 011, Friday.

Phil Zhiyuan Peng - zhiyuan_Peng@uri.edu sections 007, Thur, and 009, Thursday.

Yasara Ranasinghe - yasararan@uri.edu sections 004, Wed, and 006, Wednesday.

Missy Smith - melissa-smith@uri.edu sections 002, Monday, and 008, Thursday.

Office: Beupre 115

Office Hours: Thursdays directly after lab or by appointment

Required Laboratory Materials

- CHM 126 lab manual (will be posted gradually on Brightspace).
- RAM account and ID card, for purchases at the CHM Stockroom (Room 180).
- Safety glasses & knee-length lab coat (can be purchased at the Stockroom*).
- For some experiments, NITRILE gloves (can be obtained at the Stockroom*).
- A scientific calculator with log and exponent functions.
- Lab Prep Lessons and Announcements at the CHM 126 Brightspace website

* Note that safety equipment can also be purchased off-campus but must be approved by the Stockroom Manager before being used in lab.

Attendance Policy

CHM 126 is a laboratory course, which requires hands-on experimentation and direct observation of physical and chemical changes. For this reason, students MUST be present to conduct each experiment. Attendance is required at the day and time for which each student has registered. Under NO circumstances will students be permitted to attend a lab section other than the one for which they have officially registered (except for the Mandatory Safety Training in Day 1).

Students must take responsibility for carefully studying all lab materials and following all study/safety instructions.

The course includes 10 laboratory experiments, and a 11th make-up experiment. As the course grade is calculated upon completion of 10 experiments, each student is permitted ONE absence without penalty. Any student who has a second absence MUST complete the make-up experiment on one of the designated days in the last week of classes. A reservation at the Stockroom (Beaupre 180) is required to participate in a make-up lab session.

Students who do not complete 10 experiments can expect to receive a failing grade in the course. "Complete" means the student submitted the Pre-Lab Assignment, worked the experiment, and submitted the Report Sheet.

List of Experiments (all in person)

Lab 0 – CHM 126 lab safety, check-in

Lab 1 – Structure, Names and Isomers

Lab 2 – Separation by Thin Layer Chromatography (TLC)

Lab 3 – Separation by Distillation

Lab 4 – Dehydration, Distillation

Lab 5 – Separation by Recrystallization

Lab 6 – Synthesis of Aspirin

Lab 7 – Esters and Soaps

Lab 8 – Synthesis of Nylon

Lab 9 – Functional Groups

Lab 10 – Carbohydrates

Lab 11 – Lab Make-up Opportunity

(Lab 12) – Brightspace Lab Exam

Chemistry Department Safety Policies

- Students must be wearing their personal protective gear (lab coat and safety glasses or goggles) BEFORE they enter a teaching laboratory. (If required, nitrile gloves should be put on when students begin working on the experiment.)
- No student is permitted to enter a chemistry lab room unless they are wearing BOTH a lab coat and safety glasses or goggles. These items MUST be worn at all times while students are in a chemistry lab, and they can be removed only AFTER students have safely exited the lab room.

- Chemistry department personnel are prohibited from loaning safety glasses by State of Rhode Island health/hygiene regulations. Students who forget their safety

glasses should NOT ask about loaner eyewear and must purchase a replacement pair of safety glasses at full cost.

- Any student who comes to lab without the required personal protection items will NOT be permitted to conduct the experiment and will receive a ZERO for that week's experiment. NOTHING is more important than the personal safety of the occupants of the laboratory.

- Any student who deliberately or carelessly disregards a written or oral safety instruction can be expelled from the laboratory and will receive a grade of zero for the experiment. A student who is expelled twice from the laboratory for safety violations will automatically receive a failing grade in the course.

- Careless disregard of safety instruction includes (but is not limited to) the following:

1. Any student who improperly disposes of chemical waste (pours solutions into laboratory sinks, or places solid waste into a garbage can).

2. Any student who is NOT wearing the following personal protection items: safety glasses or goggles, lab coat (must cover the arms to below the elbow and legs to below the knee), nitrile gloves (when required), shoes which fully enclose the foot (no open toe or heel) and socks.

3. Any student who has NOT completed the Pre-Lab Assignment (so as to demonstrate effective preparation for that day's experiment).

4. Any student who uses a cell phone in lab without prior permission, or for reasons other than a laboratory emergency.

Students who forget to bring their personal protection items will face a costly penalty! Students with inappropriate footwear can purchase protective booties; however, a replacement pair of safety glasses or a lab coat must be purchased at full price. None of these items may be returned to the stockroom after they have been worn.

Disabilities Accommodations

Any student with a documented disability is encouraged to contact the lab director as early in the semester as possible so that we may arrange reasonable accommodations. If you have a chronic condition or a sports schedule that may result in missing more than one lab, please see the lab director about setting up an alternative lab session in case you miss your own.

Laboratory Work Items

Pre-Lab Assignments

Each laboratory experiment includes a Pre-Lab Assignment so students can demonstrate that they have thoroughly prepared for their experimental work.

Information about the Pre-Lab Assignments will be provided in the “Remedies for Common Laboratory Ailments” discussion presented as part of the introductory material in the CHM 126 lab manual. Students must take responsibility for reviewing these materials, contacting their lab instructor with any questions, and taking the necessary steps to prepare. Pre-lab assignments are due at the start of the lab period each week and will be collected by the TA as students enter the lab. Any student who does not submit their pre-lab assignment as they enter the lab will receive a zero for the pre-lab assignment.

Report Sheets

Report Sheets are due at the NEXT lab meeting the student attends, and they must be submitted at the START of that lab session. An immediate late penalty of 10 points will be assessed for Report Sheets not submitted in a timely manner. An additional 10-point late penalty will be assessed EACH business day after the due date, so that Report Sheets which are a full week late are worth ZERO points. As described in the “Remedies” document, the Report Sheets MUST be written in blue or black ink. Your lab instructor MUST look over your data/observations and sign your Lab Notebook pages before you leave the lab.

Lab Performance Assessment

During experiments, the lab instructor will objectively assess each student’s performance in the lab and assign 0 to 10 points for appropriate laboratory behavior and technique.

Lab performance points are AWARDED for: demonstrating familiarity with the experimental procedure, demonstrating proper experimental technique, keeping personal lab bench and communal areas clean, properly (and carefully) disposing of waste, interacting appropriately with fellow students and the teaching assistant, and adhering to safety regulations.

Performance points will be DEDUCTED for: unsafe experimental technique, leaving personal lab bench or communal work areas messy (chemical spills or equipment left out/in disarray), improper disposal of chemical waste, removal of safety glasses/goggles during an experiment, non-emergency cell phone use, or disruptive behavior during the laboratory period.

Grading Policy

Grades in CHM 126 are earned by demonstrating mastery and proficiency in the required skills; these skills include not only chemistry laboratory techniques, but also problem-solving, critical thinking, and the ability to apply course concepts within relevant laboratory scenarios. To be clear: Each student’s grade is

determined by the quality of that student's performance on the CHM 126 work items (described in detail below). The grade is not open to negotiation, and it is not dictated by what is needed to progress in the student's chosen program of study. The grade must be earned by achieving proficiency in (and ideally, mastery of) the skills identified as essential to ongoing success in the student's degree program.

The course grade will be based on the following:

10 Pre-Lab Assignments (20 points each)	200 points
10 Lab Performance Assessments (10 points each).....	100 points
10 Report Sheets (60 points each)	600 points
1 Lab Final Exam	200 points
Total	1100 points

Note, students will have the opportunity to earn a total of 90 points for each lab experiment:

- 20 points for the Pre-Lab Assignment
- 10 points for the Lab Performance Assessment
- 60 points for the Report Sheet

NO extra credit assignments will be given. The standard grading scale (93% = A, 90% = A-; 87% = B+, 83% = B, 80% = B-; 77% = C+, 73% = C, 70% = C-; 67% = D+, 60% = D+; <60% = F) will be in effect.

The teaching assistant assigned to your section does all grading for the course. Contact your TA immediately if you have a problem with the grading of your work. If the problem does not get resolved through your TA, contact the course coordinator. No changes in grades will be made if the problem is not addressed within ONE WEEK of receiving your graded material back from your TA.

Students should be aware that the CHM 124 lecture and CHM 126 lab are separate courses. The lab is intended to complement the lecture by illustrating many of the lecture concepts; however, the timing of these concepts may not be synchronized with the lecture presentation. The lab may include some additional concepts that are not taught in lecture.

NOTE! For those CHM 126 students currently enrolled in the CHM 124 lecture course: if you DROP the CHM 124 lecture course, you MUST ALSO DROP the CHM 126 lab. It is recognized that some students enrolled in the CHM 126 lab may have completed the CHM 124 lecture in a previous semester or previous academic year. For this reason, each of the experiments in the lab manual is written as a complete lesson, and supplemental materials will be available at the Brightspace course site.

Any student who does a thorough job studying the provided course materials, preparing for each experiment, practicing the required skills, and utilizing the Study Help Resources, should be able to succeed in the course.

Incomplete Policy

Incomplete grades cannot be assigned except in the case of a real emergency. Any grade of incomplete must be approved by the department chair and the dean. In order to receive an incomplete, a student's coursework must have been passing and the student must have completed at least half of the coursework for the semester. Students receiving a grade of Incomplete should make necessary arrangements with the lab coordinator to complete the work prior to the following mid-semester. If an incomplete is not made up prior to the two-year grade change deadline established by the University, the "I" will be replaced with a grade calculated for the student based on the work completed and including zeroes for any work not completed.

Laboratory Equipment Bills

Each lab student is responsible for the equipment provided in his/her assigned drawer. Because that drawer is shared with students in other sections, each student must carefully inventory the equipment in the drawer to verify that all items are present and in good working order. This inventory must be conducted at both the beginning and end of every lab period. Students will be charged for any items that they break during their own lab section. Students will also be charged for any items reported missing or broken by the student who inventories that drawer at the beginning of the next lab section. Make sure to verify that all equipment has been returned to your drawer before leaving lab! Students must take responsibility for checking the Chemistry Stockroom website to determine whether they have an outstanding lab equipment bill. A link to the Stockroom website is available from the CHM 126 Brightspace course site. The deadline to pay lab equipment bills at the Chemistry Stockroom is at the close of business at the end of Final Exam week. Any student who has an unpaid bill at the Chemistry Stockroom after that day will have a hold placed on their e-Campus account. This hold may prevent students from registering for classes, obtaining a transcript, or obtaining a diploma.

URI Policy on Academic Honesty

The URI policy on academic honesty is detailed in the student handbook (available online) and is summarized below:

“Students are expected to be honest in all academic work. A student's name on ANY written work, including assignments, lab reports, papers, or exams, shall be regarded as assurance that the work is the result of the student's own thought and

study. Work should be stated in the student's own words, properly attributed to its source. Students have an obligation to know how to quote, paraphrase, summarize, or reference the work of others with integrity. When students are authorized to work jointly, group effort MUST be indicated on the work submitted."

The following are some examples of academic dishonesty seen in the chemistry labs:

- Answers on pre-lab assignments, report sheets, etc. are identical, or nearly identical, to those of another student. Even just one identical answer is considered academic dishonesty. While it is acceptable to discuss lab information, each student should then work alone to answer all questions independently and in their own words.
- Having another student's completed, or partially completed, manual in your possession, or using such a manual to assist you in answering questions on your own lab work items.
- Having another student's pre-lab assignment(s) or report sheet(s) in your possession, or using these items to help you answer questions on your lab work items. This includes items from previous semesters.
- Unauthorized communication, copying from another student's work.
- Using unauthorized information from your lab manual or another resource during a concept review.
- Altering or attempting to alter grades.
- Changing data to match expected results or results obtained by another student.
- Providing materials for another student to copy from.

As noted in the student handbook: When there is an allegation of academic dishonesty, the instructor may fail the student for the assignment, or recommend that the student fail the course.

URI Plagiarism Policies Specific to CHM 126

The class will be conducted with each experiment in pairs. All partner data with numbers is expected to be the same. But discussion questions are expected to be in each partner's own words. Each student's Pre-Lab Assignment, and Lab Report Sheet MUST be completed on an individual basis. Students who submit work that is clearly the same as another student's work are in violation of the University's Policy on Academic Honesty. Those students will be held accountable as described in that Policy. Academic dishonesty in any form is considered a serious offense, and disciplinary action will be taken immediately.

No written section (not including numbers) of your Pre-Lab Assignment, or Report Sheet can be identical (or nearly identical) to that of another student without attribution. If sections of Pre-Lab Assignments or Report Sheets are the same (or

nearly the same) as another source (e.g., a student's paper, a section of the lab handout or lecture textbook, an explanation from a TA, information posted on the internet), it will be regarded as plagiarism. The consequence of a first instance of plagiarism is a grade of zero on that section of the graded paper. If there is a repeat instance of plagiarism, the penalty is a grade of zero on the entire Pre-Lab Assignment, Concept Review, or Report Sheet. A zero-score due to a plagiarism incident will stand and cannot be dropped as the lowest grade earned on a Lab Work Item. You will be expected to sign the department plagiarism policy at the start of each semester that you take a chemistry lab. A copy of this policy is included in this syllabus for your reference.

Study Help Resources - Chemistry Graduate Student Teaching Assistants in Beaupre Learning Center

Normally, during the academic year. The Beaupre Learning Center is staffed by the Chemistry Department's Teaching Assistants and members of the AXE Chemistry fraternity and provides a study resource for preparing for lab and working problems. However, in the summer if you have a general question about lab, or need help with questions or calculations, your best bet is to take to our TA, Missy, during or after lab or talk to me after class.

The other option is visit with the Chemistry Tutors at the Academic Enhancement Center (AEC) The AEC (www.uri.edu/aec) can help you keep up with class work and study course materials more effectively. Their staff of learning specialists and student tutors can help you identify a study approach, develop effective study strategies, understand course concepts, and practice skills productively. You can study at the AEC alone or in small groups. Please note that tutors at the AEC are not able to help with lab specific questions, but they can help you to understand the general material covered in CHM 105 and to improve your overall study skills. For the AEC schedule, please see their website (www.uri.edu/aec).

Study Help Advice

Whether you are seeking help from your TA, an AEC Tutor, or Dr. Dombi you'll want to arrive at your help session on time and fully prepared, to make the discussion as productive and efficient as possible. This means you should bring all relevant study/reference materials with you to the session, including your CHM 126 lab manual, your data/observations from the lab experiment, your scientific calculator, and your written list of specific questions and/or goals for the help session.

URI Anti-discrimination Policy

It is the policy of the University of Rhode Island not to discriminate on the basis of race, sex, religion, age, color, creed, national origin, disability, sexual orientation, gender identity or expression, citizenship status, genetic information, marital status, aids/hiv and domestic abuse victim, homelessness or discriminate against disabled and Vietnam era veterans in the recruitment, admission or treatment of students, the recruitment, hiring or treatment of faculty and staff, and in the operation of its activities and programs, as specified by State and Federal Laws and all other laws which pertain to access and equity. The University of Rhode Island is committed to the principles of Affirmative Action and the attainment of Equal Employment and Equal Educational opportunities for all qualified individuals. The Director of Affirmative Action, Equal Opportunity and Diversity has been designated by the President as the person who shall have overall responsibility for the implementation and maintenance of such programs. For further information, please contact the Affirmative Action Office at (401) 874-2442.

Important Spring 2023 Semester Deadlines

- Classes begin: Monday, January 23.
- Last day to ADD courses: Friday, February 03.
- HOLIDAY: President's Day, No Classes: Monday, February 20.
- Last day to DROP classes: Monday, March 06.
- Mid-Semester: Wednesday, March 08.
- Spring Break, No Classes: Saturday, March 11 – Sunday, March 19.
- Classes End and Final Exams given: Week of April 01.
- Final Grades Due in eCampus by 12:00 noon..... Tuesday, May 16.

CHM 126 Schedule of Experiments – Spring Term 2023

Week	Dates	Learning Event
Week #1	M 1/23	No labs meet
	T 1/24	CHM lab safety, check-in
	W 1/25	CHM lab safety, check-in
	Th 1/26	CHM lab safety, check-in
	F 1/28	CHM lab safety, check-in
Week #2	M 1/30	No labs meet
	T 1/31	Lab 01-Structure, Names, Isomers
	W 2/01	Lab 01-Structure, Names, Isomers
	Th 2/02	Lab 01-Structure, Names, Isomers
Week #3	F 2/03	Lab 01-Structure, Names, Isomers
	M 2/06	No labs meet
	T 2/07	Lab 02-Separation by TLC
	W 2/08	Lab 02-Separation by TLC
	Th 2/09	Lab 02-Separation by TLC
Week #4	F 2/10	Lab 02-Separation by TLC
	M 2/13	No labs meet
	T 2/14	Lab 03-Separation by Distillation
	W 2/15	Lab 03-Separation by Distillation
	Th 2/16	Lab 03-Separation by Distillation
Week #5	F 2/17	Lab 03-Separation by Distillation
	M 2/20	Presidents Day, No labs meet
	T 2/21	Lab 04-Dehydration, Distillation
	W 2/22	Lab 04-Dehydration, Distillation
	Th 2/23	Lab 04-Dehydration, Distillation
Week #6	F 2/24	Lab 04-Dehydration, Distillation
	M 2/27	No labs meet
	T 2/28	Lab 05-Separation: Recrystallization
	W 3/01	Lab 05-Separation: Recrystallization
	Th 3/02	Lab 05-Separation: Recrystallization
Week #7	F 3/04	Lab 05-Separation: Recrystallization
	M 3/06	No labs meet
	T 3/07	Lab 06-Synthesis of Aspirin
	W 3/08	Lab 06-Synthesis of Aspirin
	Th 3/09	Lab 06-Synthesis of Aspirin
Week #8	F 3/10	Lab 06-Synthesis of Aspirin

Week	Dates	Learning Event
Week #8	M 3/13	Spring Break No labs meet
	T 3/14	Spring Break – no labs meet
	W 3/15	Spring Break – no labs meet
	Th 3/16	Spring Break – no labs meet
	F 3/17	Spring Break – no labs meet
Week #9	M 3/20	No labs meet
	T 3/21	Lab 07-Esters and Soaps
	W 3/22	Lab 07-Esters and Soaps
	Th 3/23	Lab 07-Esters and Soaps
	F 3/24	Lab 07-Esters and Soaps
Week #10	M 3/27	No labs meet
	T 3/28	Lab 08-Synthesis of Nylon
	W 3/29	Lab 08-Synthesis of Nylon
	Th 3/30	Lab 08-Synthesis of Nylon
	F 3/31	Lab 08-Synthesis of Nylon
Week #11	M 4/03	No labs meet
	T 4/04	Lab 09–Functional Groups
	W 4/05	Lab 09–Functional Groups
	Th 4/06	Lab 09–Functional Groups
	F 4/07	Lab 09–Functional Groups
Week #12	M 4/10	No labs meet
	T 4/11	Lab 10-Carbohydrates
	W 4/12	Lab 10-Carbohydrates
	Th 4/13	Lab 10-Carbohydrates
	F 4/14	Lab 10-Carbohydrates
Week #13	M 4/17	No labs meet
	T 4/18	Lab Make-up or, Check-out
	W 4/19	Lab Make-up or, Check-out
	Th 4/20	Lab Make-up or, Check-out
	F 4/21	Lab Make-up or, Check-out
Week #14	M 4/24	No labs meet
	T 4/25	Brightspace Lab Exam
	W 4/26	Brightspace Lab Exam
	Th 4/26	Brightspace Lab Exam
	F 4/27	Brightspace Lab Exam