Introduction to Organic Chemistry Laboratory – CHM 126 (Laboratory for Chemistry 124)
Course Information and Syllabus – Fall Term, 2021

Course Instructors

Laboratory Director

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Laboratory Instructors

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Sections 6, 7, 9: Phil Peng: zhiyuan_peng@uri.edu

Sections 2, 5, 8: Justin Trickett: jtrickett@uri.edu

Sections 4, 10, 12: Julia Vieira: vieiraju@uri.edu

Required Laboratory Materials

- RAM account and ID card to purchase items at the Beaupre 180 Stockroom (RAM card or check only payment)
- Safety goggles/glasses, $8.00 – 10.00 at Stockroom
- Knee-length lab coat, $18.00 at Stockroom
- Disposable face mask and protective nitrile gloves, provided for each experiment
- Scientific calculator, with logarithm and exponent functions (cell phones may not be used as calculators)
- Medical Information Form (provided at the first in-person lab session) is required for all in-person labs
- All learning materials at the CHM 126 Brightspace course site

Students must take responsibility for carefully studying all lab materials and following all study/safety instructions. Safety glasses or knee-length lab coats that are purchased off-campus must be approved by the CHM Stockroom.

Attendance

CHM 126 is a *laboratory* course, which requires hands-on experimentation and direct observation of physical and chemical changes. *Students must be physically present to conduct each experiment*. Attendance is *required* at the day and time for which each student has registered. As each lab section is enrolled to capacity students are not permitted to attend a lab section other than the one for which they have officially registered (except for Safety Training in Week 1).

The course includes 10 laboratory experiments. Each student's course grade is based on the best eight of ten *completed* experiments. *Completed* means the student has worked the experiment and submitted the required work items.

Grading Policy

Each student's course grade will be determined from their submitted work on the best eight of ten in-lab experiments, the Week 1 Lab Safety Activity, and the comprehensive Lab Exam:

Lab Safety Activity	5%
Eight in-lab experiments (10% each)	80%
Comprehensive Lab Exam, administered via Brightspace	15%
	100%

No extra credit assignments will be given, and students should expect that the standard grading scale will be applied:

90%+ = A- / A; 80-89% = B- / B / B+; 70-79% = C- / C / C+; 60-69% = D / D+; < 60% = F.

Grades in CHM 126 are *earned* by demonstrating proficiency in the required skills. These skills include not only the organic laboratory techniques, but also critical thinking and problem solving: the ability to apply organic chemistry

concepts to relevant laboratory scenarios, and to predict physical and chemical properties from a study of a compound's molecular structure (*i.e., explain how Structure determines Function*).

Each student's grade will be determined by the quality of the student's performance on the course work items. The grade is not open to negotiation, and it is not dictated by what's needed to progress in the student's chosen program of study. Each student's 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.

Students should also 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* or *may not* be synchronized with the lecture presentation. CHM 126 also includes experimental concepts *not* taught in lecture.

IMPORTANT NOTE to 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.

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 experiment is written as a complete lesson, with all needed learning materials available at the Brightspace course site. It's intended that any student who does a thorough job studying the provided learning materials, preparing for each in-lab experiment, practicing the required skills, and utilizing the Study Help Resources should be able to succeed in the course.

Extended time testing accommodations can be provided on the lab exam for any students with a documented disability. These students should contact Dr. Graham as early as possible with documentation from the Disability Services for Students Office (DSS), so these arrangements can be made.

Laboratory Work Items

1. Pre-Lab Worksheets for In-Lab Experiments

Each in-lab experiment includes a Pre-Lab Worksheet. Students must download this pdf file from the Brightspace site, print the document, and complete it prior to coming to Beaupre to work the in-lab experiment.

As the Pre-Lab Worksheet serves as evidence the student has thoroughly prepared to conduct experimental work, it must be submitted to the Lab Instructor as the student enters the lab room at the designated day/time of the experiment. Pre-Lab Worksheets submitted *after* the start of lab will be accepted, but *assigned a grade of zero.*

If students need assistance completing a Pre-Lab Worksheet, they should plan to participate in Dr. Graham's or their Lab Instructor's office hours (or post their question to the Brightspace Discussion) well in advance of the experiment.

2. Report Sheets for In-Lab Experiments

Each of the in-lab experiments also includes a Report Sheet. Students must download this pdf file from the Brightspace site, print the document, and bring it with them to Beaupre for use during the in-lab experiment.

Each in-lab Report Sheet will have two parts: 1) the lab notebook, for recording data and observations while working the experiment; 2) a more formal summary of results and conclusions, as well as post-lab discussion questions.

Both the in-lab and post-lab portions of the Report Sheet must be written in blue or black ink, and students should ask their Instructor to review their data/observations and *sign the lab notebook pages* before the student leaves the lab.

The post-lab portion of the Report Sheet is completed *after* experimentation is done, and *after* calculations are worked and results are interpreted. This part of the Report Sheet serves as the final, formal presentation of each student's experimental work.

The completed Lab Report Sheet is due at the *NEXT lab meeting the student attends,* and it must be submitted at the *START* of that lab session. A ten-point late penalty will be assessed each business day after the designated submission date, so that a 60-point Report Sheet which is a full week late will be worth zero points.

3. Brightspace Skill Checks

These online Skill Checks will probe at students' understanding of key skills, and push them to think more deeply and critically about fundamental concepts. Each consists of a pooled set of questions, meaning a fixed number of questions

will be selected at random from a larger pool each time the Skill Check is opened. A Skill Check may be taken up to three times. Correct responses will be provided for answered questions. After reviewing the feedback, students can re-take a Skills Check two more times, to answer a different set of questions, and to maximize both learning and credit.

4. Brightspace Lab Exam

The CHM 126 Lab Exam will consist of multiple-choice questions that students are to answer via the Brightspace LMS. Questions will be selected at random from a series of question pools that represent all ten lab experiments.

CHM 126 Schedule of Experiments – Fall Term 2021

Week	*Dates*	*Learning Event*
	M 9/6	*Labor Day Holiday*
Week	T 9/7	*Advising Day*
#1	W 9/8	**CHM lab safety, check-in**
	Th 9/9	**CHM lab safety, check-in**
	F 9/10	**CHM lab safety, check-in**
	M 9/13	*No labs meet*
Week	T 9/14	**CHM lab safety, check-in**
#2	W 9/15	**Lab 01-Structure, Names, Isomers**
	Th 9/16	**Lab 01-Structure, Names, Isomers**
	F 9/17	**Lab 01-Structure, Names, Isomers**
	M 9/20	*No labs meet*
Week	T 9/21	**Lab 01-Structure, Names, Isomers**
#3	W 9/22	**Lab 02-Separation by TLC**
	Th 9/23	**Lab 02-Separation by TLC**
	F 9/24	**Lab 02-Separation by TLC**
	M 9/27	*No labs meet*
Week	T 9/28	**Lab 02-Separation by TLC**
#4	W 9/29	**Lab 03-Separation by Distillation**
	Th 9/30	**Lab 03-Separation by Distillation**
	F 10/1	**Lab 03-Separation by Distillation**
	M 10/4	*No labs meet*
Week	T 10/5	**Lab 03-Separation by Distillation**
#5	W 10/6	**Lab 04-Dehydration, Distillation**
	Th 10/7	**Lab 04-Dehydration, Distillation**
	F 10/8	**Lab 04-Dehydration, Distillation**
	M 10/11	*Columbus Day, no labs meet*
Week	T 10/12	**Lab 04-Dehydration, Distillation**
#6	W 10/13	**Lab 05-Separation: Recrystallization**
	Th 10/14	**Lab 05-Separation: Recrystallization**
	F 10/15	**Lab 05-Separation: Recrystallization**
	M 10/18	*No labs meet*
Week	T 10/19	**Lab 05-Separation: Recrystallization**
#7	W 10/20	**Lab 06-Synthesis of Aspirin**
	Th 10/21	**Lab 06-Synthesis of Aspirin**
	F 10/22	**Lab 06-Synthesis of Aspirin**

Week	*Dates*	*Learning Event*
	M 10/25	*No labs meet*
Week	T 10/26	**Lab 06-Synthesis of Aspirin**
#8	W 10/27	**Lab 07-Esters and Soaps**
	Th 10/28	**Lab 07-Esters and Soaps**
	F 10/20	**Lab 07-Esters and Soaps**
	M 11/1	*No labs meet*
Week	T 11/2	**Lab 07-Esters and Soaps**
#9	W 11/3	**Lab 08-Synthesis of Nylon**
	Th 11/4	**Lab 08-Synthesis of Nylon**
	F 11/5	**Lab 08-Synthesis of Nylon**
	M 11/8	*No labs meet*
Week	T 11/9	**Lab 08-Synthesis of Nylon**
#10	W 11/10	**Lab 09-Functional Groups (Th labs)**
	Th 11/12	*Veterans' Day, no labs meet*
	F 11/13	**Lab 09-Functional Groups**
	M 11/15	*No labs meet*
Week	T 11/16	**Lab 09-Functional Groups**
#11	W 11/17	**Lab 09-Functional Groups**
	Th 11/18	**Lab Make-up Opportunity**
	F 11/19	**Lab Make-up Opportunity**
	M 11/22	*No labs meet*
Week	T 11/23	**Lab Make-up Opportunity**
#12	W 11/24	**Lab Make-up Opportunity**
	Th 11/25	*Thanksgiving Holiday*
	F 11/26	*Thanksgiving Recess*
	M 11/29	*No labs meet*
Week	T 11/30	**Lab 10-Carbohydrates**
#13	W 12/1	**Lab 10-Carbohydrates**
	Th 12/2	**Lab 10-Carbohydrates**
	F 12/3	**Lab 10-Carbohydrates**
	M 12/6	*No labs meet*
Week	T 12/7	**Brightspace Lab Exam**
#14	W 12/8	**Brightspace Lab Exam**
	Th 12/9	**Brightspace Lab Exam**
	F 12/10	**Brightspace Lab Exam**

Laboratory Safety

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 will 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 has *NOT* completed the Pre-Lab Worksheet or is *NOT* able to answer questions about the laboratory procedure (i.e., not able to demonstrate effective preparation for that day's experiment).
2. Any student who improperly disposes of chemical waste (pours solutions into laboratory sinks, or places solid waste into a garbage can).
3. Any student who does *NOT* have the following personal protection items: protective mask, safety glasses or goggles, lab coat (clothing which covers the arms to below the elbow and legs to below the knee), protective (nitrile) gloves, shoes which fully enclose the foot (no open toe or heel) and socks.

Students who forget to bring their personal protection items will face a costly penalty: Those with inappropriate footwear can purchase protective booties ($2.50+). However, a replacement pair safety glasses or a lab coat must be purchased at full price ($8-10 and $18, respectively). None of these items may be returned to the stockroom after they've been worn.

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

Cell phones must be turned off and placed in the designated cubby with each student's coat, purse, or backpack. Use of a cell phone for non-emergency communication will result in being expelled from the lab with a zero for the Report Sheet of that experiment. (If a personal emergency makes it essential that you take a call, remove your gloves and step into the hallway for the duration of the call.)

Department Safety Policies

- Students must be wearing their personal protection gear *BEFORE* they enter a teaching laboratory.
- No student is permitted to enter a chemistry lab room unless they're 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 instructors will not provide loaner safety glasses to students due to COVID-19 hygiene concerns. Students who forget their safety glasses will be expected to purchase a replacement pair of safety glasses at full cost.

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.

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 sanction (a hold) placed on their e-Campus account. This sanction may prevent students from registering for classes, obtaining a transcript, or obtaining a diploma.

Study Help Resources

- ***Tutoring support from Dr. Graham at office hours or via Brightspace Discussion.***

Dr. Graham's office hour schedule will be available to you via Starfish. Unless you have a confidential question regarding your graded work in the course, please considering posting your inquiry to the Brightspace *Discussion,* so your classmates can also benefit from the answer(s) to your question.

When emailing instructors: use a concise, descriptive subject line; include your full name, chemistry course and section number, and make sure the question you asked or the information you convey in the message is clear and complete.

- ***CHM Tutoring, provided by Graduate Teaching Assistants at the Beaupre 115 Chemistry Help Office***

The Graduate Students who teach the various chemistry laboratory courses provide tutoring via their Chemistry Help Office hours. A complete schedule of CHM TA WebEx office hours is available in the CHM 126 Brightspace site.

If you have a general question about lab, or need help with questions or calculations, you can see any one of the TAs (however, those TAs teaching the CHM 126 or 226 organic chemistry labs will be *most* familiar with the content of this course).

The Online Chemistry Help Office is recommended as the #1 study help resource for questions about lab courses, as the CHM TAs actually teach these lab courses. They are more familiar with the specific experiments and expectations for lab reports than are the tutors at the Academic Enhancement Center.

- ***STEM Peer Tutoring, provided by the Academic Enhancement Center (AEC)***

STEM Tutoring helps students navigate 100- and 200-level math, chemistry, physics, biology, and other courses. The STEM Tutoring program will offer free in-person peer-tutoring. Undergraduates in introductory STEM courses have a variety of small group times to choose from, and can select occasional or weekly appointments. Appointments and locations will be visible in the TutorTrac system.

The TutorTrac application is available through URI Microsoft 365 single sign-on and by visiting aec.uri.edu. More detailed information and instructions can be found at uri.edu/aec/tutoring.

- ***Academic Coaching at the Academic Enhancement Center (AEC)***

The AEC's academic skills and strategies programs help students identify their individual planning and studying needs in this or any other course, and can teach you to implement new, more effective ways of studying, planning, managing time and work, and dealing with challenges like procrastination and motivation.

The AEC's three academic skills and strategies programs are offered both online and in-person. For more information on these programs or assistance with setting an appointment, visit https://web.uri.edu/aec/academic-skills/, or contact Dr. David Hayes directly at davidhayes@uri.edu.

- *UCS 160: Success in Higher Education* is a one credit course, offered each semester to all undergraduates on learning how to learn and excel in college academics.
- *Academic Consultation* sessions are 30-minute, one-to-one appointments that students can schedule online by visiting the AEC on Starfish and making an appointment with Dr. David Hayes, the AEC's academic skills development specialist.
- *Study Your Way to Success* is a self-guided web portal connecting students to tips and strategies on studying and time management related topics.

Study Help Advice

Whether you're seeking help from Dr. Graham, a Chemistry Teaching Assistant, or AEC Tutor, you'll want to come to 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. This would include your laptop (for Brightspace access), your data/observations from the lab experiment, your scientific calculator, and your written list of specific questions and/or your goals for the help session.

COVID-19 Statement

The University is committed to delivering its educational mission while protecting the health and safety of our community. While the university has worked to create a healthy learning environment for all, it is up to all of us to ensure our campus stays that way.

As members of the URI community, students are required to comply with standards of conduct and take precautions to keep themselves and others safe. Visit web.uri.edu/coronavirus/ for the latest information about the URI COVID-19 response.

- Universal indoor masking is required by all community members, on all campuses, regardless of vaccination status. If the universal mask mandate is discontinued during the semester, students who have an approved exemption and are not fully vaccinated will need to continue to wear a mask indoors and maintain physical distance.
- Students who are experiencing symptoms of illness should not come to class. Please stay in your home/room and notify URI Health Services via phone at 401-874-2246.
- If you are already on campus and start to feel ill, go home/back to your room and self-isolate. Notify URI Health Services via phone immediately at 401-874-2246.

If you are unable to attend class, please notify Dr. Graham at cbrittain@uri.edu, and make plans to stay current with your learning and skills practice via strategic use of the online resources (i.e., Brightspace Content lessons, OWL Assignments).

Anti-Bias Statement

As members of the URI Community, we respect the rights and dignity of each individual and group. We reject prejudice and intolerance, and we work to understand differences. We believe that equity and inclusion are critical components for campus community members to thrive.

If you are a target or a witness of a bias incident, you are encouraged to submit a report to the URI Bias Response Team at www.uri.edu/brt. There you will also find people and resources to help.

Basic Needs Resources

Any students who face challenges securing their food, housing, or learning resources and believe this may affect their course performance are urged to contact Jacqui Springer (jacqui_springer@uri.edu) in the Student Support and Advocacy Services Office.

If you're comfortable doing so, please also notify Dr. Graham and/or your lab instructor, so they can assist in providing you with resources and support.

Important Fall Semester Deadlines

- *Last day of e-Campus open add period:* Tuesday, September 14
- *Last day of e-Campus add with permission number:* Tuesday, September 21
- *Last day for students to drop courses via e-Campus with no transcript designation:* Wednesday, September 29
- *Last day for students to drop courses via e-Campus (with drop designated on transcript):* Wednesday, October 20
- *Mid-term progress reports posted in e-Campus:* Tuesday, October 26

Academic Honesty

Each student's Pre-Lab Worksheet and 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.

The URI policy on academic honesty is detailed in the student handbook (available online), and it 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 examples of academic dishonesty:

- *Claiming disproportionate credit for work not done independently.*
- *Unauthorized use of another's work or preparing work for another student.*
- *Unauthorized possession or access to exams.*
- *Unauthorized communication during exams.*
- *Taking an exam for another student.*
- *Altering or attempting to alter grades.*
- *The unauthorized use of notes or electronic devices (such as calculators, computers, or cell phones) during exams.*
- *Fabricating or falsifying facts, data, or references.*
- *Facilitating or aiding another's academic dishonesty.*

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.*

Chemistry Department plagiarism policies specific to CHM 126:

No portion of a student's submitted work can be identical (or nearly identical) to that of another student without attribution. If a student's work is the same (or very nearly the same) as another source (e.g., a student's paper, the online lab materials, 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 portion of the graded paper. If there is a repeat instance of plagiarism, the penalty is a grade of zero on the Assignment.

A zero score due to a plagiarism incident will stand, and cannot be dropped as the lowest grade earned on a Lab Work Item.