COURSE NUMBER: 8570

UCONN
UNIVERSITY OF CONNECTICUT

Organic Chemistry: CHEM 2445
Department of Chemistry

Syllabus – Spring 2023

Excluding materials for purchase, syllabus information may be subject to change. The most up-to-date syllabus is located within the course in HuskyCT.

Program Information

Enrollment Requirements: CHEM 2444, which may be taken concurrently. Students who have passed CHEM 2242 or 2446 will receive only 2 credits. Cannot be taken for credit after passing CHEM 4370.

Course and Instructor Information

Course Title: Organic Chemistry Laboratory
Credits: # 3
Format: in-person

Professor: Anwar Beshir
Email: anwar.beshir@uconn.edu
Telephone: 860-486-6610 (office)
Office Hours/Availability: M-Th 11:00 AM – 12:00 PM.

Lecture: TTh **8:00-8:50** AM ATWR A001.

✓ I will discuss concepts and go over procedures for each experiment.

Course Materials

Required course materials should be obtained before the first day of class.

Required course materials are available for purchase through the UConn Bookstore (or use the Purchase Textbooks tool in HuskyCT).

Required Materials:

Textbook: Macroscale and microscale organic experiments, Williamson and Masters 7th ed. Or UCONN ed. *ISBN:* ***8220101437488***

Safety Googles: always Required inside the lab.

Additional course readings and media are available within HuskyCT, through an Internet link

Course Description

Techniques, calculations, reactions, characterization, and spectroscopy.

Course Objectives

By the end of the semester, students should be able to:

- ✓ Describe techniques, safely setup and run reactions, and purify and characterize products.
- ✓ Collect data and explain the roles of reagents and reaction conditions.
- ✓ Analyze/interpret spectroscopic data
- ✓ Identify limiting reagent and calculate theoretical and percent yields.
- ✓ Draw chemical equations and show mechanisms for reactions.

Upon completing the course, students will have the ability to synthesize, extract, purify and characterize organic compounds even ones that have not explicitly been discussed.

Schedule of lectures, labs, quizzes, and exams (Williamson Masters, 7th ed. Or UCONN ed.)

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
January 16, 2023	January 17, 2023	January 18, 2023	January 19, 2023
	Intro		Melting Point
No lab	No Lab	Check-in	Check-in
January 23, 2023	January 24, 2023	January 25, 2023	January 26, 2023
	Recrystallization		Extraction
Lab-1: Melting Point	**Lab-1: Melting Point**	**Lab-2: Recrystallization**	**Lab-2: Recrystallization**
(sec. 3.1-3.4) p:53,54	(sec. 3.1-3.4) p:53,54	(sec. 4.1, 4.3, 4.6) p:79,81,82	(sec. 4.1, 4.3, 4.6) p:79,81,82
January 30, 2023	January 31, 2023	February 1, 2023	February 2, 2023
	Extraction		TLC
Finish Recrystallization	**Finish Recrystallization**	**Lab-3: Extraction**	**Lab-3: Extraction**
		(sec. 7.3) p: 149	(sec. 7.3) p: 149
February 6, 2023	February 7, 2023	February 8, 2023	February 9, 2023
	Distillation, **Q1 (Lab-1 and 2)**		Electrophilic addition Rxn
Finish Extraction	**Finish Extraction**	**Lab-4: TLC**	**Lab-4: TLC**
		Handout	Handout
February 13, 2023	February 14, 2023	February 15, 2023	February 16, 2023
	Steam distillation, **Q2 (Lab-3 and 4)**		TBA
Lab-5: Distillation	**Lab-5: Distillation**	**Lab-6: meso-stilbene dibromide**	**Lab-6: meso-stilbene dibromide**
(sec. 5.4A, 5.5A, 5.6) p: 97,100,100	(sec. 5.4A, 5.5A, 5.6) p: 97,100,100	Handout	Handout
February 20, 2023	February 21, 2023	February 22, 2023	February 23, 2023
	1-Bromobutane, **Q3 (Lab-5 and 6)**		**Review and go over quizzes 1-3**
Lab-7: Steam distillation	**Lab-7: Steam distillation**	**Finish steam distillation**	**Finish steam distillation**
(sec 6.5) p: 113	(sec 6.5) p: 113		
February 27, 2023	February 28, 2023	March 1, 2023	March 2, 2023
	Oxidation of Cyclohexanol, **Q4 (Lab-7)**		Asprin synthesis
lab-8: 1-Bromobutane	**lab-8: 1-Bromobutane**	**finish 1-Bromobutane**	**finish 1-Bromobutane**
(sec 16) p: 316	(sec 16) p: 316		
March 6, 2023	March 7, 2023	March 8, 2023	March 9, 2023
	Aldehydes and Ketones, **Q5 (Lab-8)**		Aldol condensation
Lab-9: Oxidation of Alcohols	**Lab-9: Oxidation of Alcohols**	**Lab-10: Aspirin synthesis**	**Lab-10: Aspirin synthesis**
(sec 22.4) p: 366	(sec 22.4) p: 366	(sec 41) p: 535	(sec 41) p: 535
March 13, 2023	March 14, 2023	March 15, 2023	March 16, 2023
SPRING RECESS			

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
March 20, 2023	March 21, 2023	March 22, 2023	March 23, 2023
	Diels-Alder, **Q6 (Lab-9 and 10)**		**Review and go over quizzes 4-6**
Lab-11: Aldehydes and Ketones	**Lab-11: Aldehydes and Ketones**	**Lab-12: Aldol condensation**	**Lab-12: Aldol condensation**
(sec 36.1) p: 476	(sec 36.1) p: 476	(sec 37) p: 489	(sec 37) p: 489
March 27, 2023	March 28, 2023	March 29, 2023	March 30, 2023
	TBA, Q7 (Lab-11 and 12)		Lidocaine synthesis
Lab 13: Diels-Alder	**Lab 13: Diels-Alder**	**Make up lab: TBA**	**Make up lab: TBA**
Handout	Handout	Handout	Handout
April 3, 2023	April 4, 2023	April 5, 2023	April 6, 2023
	Grignard, **Q8 (Lab 13)**		**Review and go over quizzes 7 & 8**
Lab-14: Lidocaine	**Lab-14: Lidocaine**	**Finish Lidocaine synthesis**	**Finish Lidocaine synthesis**
Handout	Handout		
April 10, 2023	April 11, 2023	April 12, 2023	April 13, 2023
	IR / NMR, **Q9 (Lab-14)**		Nitration
Lab-15: Grignard	**Lab-15: Grignard**	**Finish Grignard**	**Finish Grignard**
(sec. 38.4, 38.5 & 38.7) p: 504-507	(sec. 38.4, 38.5 & 38.7) p: 504-507		
April 17, 2023	April 18, 2023	April 19, 2023	April 20, 2023
	IR / NMR, **Q10 (Lab-15)**		Lab-practical, **Q11 (Lab-16)**
Lab-16: Nitration	**Lab-16: Nitration**	**IR-NMR Problem set**	**IR-NMR Problem set**
(sec 28.1, microscale) p:406	(sec 28.1, microscale) p:406	IR/NMR (handout)	IR/NMR (handout)
April 24, 2023	April 25, 2023	April 26, 2023	April 27, 2023
	Q for IR & LP, & Make-up Q (Cumulative)		**Review & go over quizzes 9-11, & IR**
Lab Practical	**Lab Practical**	**Check-out**	**Check-out**
Handout	Handout		
May 1, 2023	May 2, 2023	May 3, 2023	May 4, 2023
Final Exam			

Course Requirements and Grading

Summary of Course Grading:

Course Components	Points
Experiments*	**700**
Lab practical	**50**
IR / NMR problem set	**50**
Final	**200**
TOTAL	**1000**

***Experiment total is **16 x 50 = 800 pts.** but it will be converted to out of **700 pts.**

Experiments

There will be a total of 16 experiments worth **50 pts.** each**.** You MUST complete at least 13 out of 16 experiments to pass the course. You will be allowed to make up ***one*** missed lab and the second missed lab will be dropped. I will not drop the second missed lab if it is experiment 14 or 15.

- **Point distribution for lab grades (50 pts.) is as follows**:

  - **Participation points**: Successful completion of experiment during assigned day and **time** = **10 pts.**

  - **Pre-lab quiz** = **05 pts**. (will be given in huskyCT at the beginning each new lab).
  - **Post-lab quiz = 15 pts.** (will be given in huskyCT on Tuesdays at the beginning of lecture, see schedule)
  - **Lab report** = **20 pts.** (a short lab report that includes Exp. number, Title, Objective, Intro., Procedure, Data table, result, discussion, and conclusion).

- ✓ **Pre-lab report that includes experiment number, objective, intro, procedure, blank data table should be done before you come to lab.**
- ✓ **Data table, observations, calculations should be completed and signed by TA before you leave the lab.**
- ✓ **Complete lab report that includes discussion and conclusion is due at the beginning of next lab session.**

- **Make-up Labs and pre-lab quizzes:** ONLY for students who missed a lab because of emergency or have acceptable reason.
- **NO make-up for pre-lab quiz if you miss just a pre-lab quiz. No exceptions.**

Post-lab quizzes

- There are 11 post-lab quizzes that will be given on huskyCT on lockdown browser. You must be physically in ATWR A001 to take the quiz. Taking quizzes remotely is considered academic misconduct. You will be given zero and reported to the community standards. The lowest post-lab quiz grade will be dropped.
- **Make-up post-lab quiz**: There will be ONLY **one cumulative make-up post-lab quiz scheduled for April 25th**. Open to all students who missed any of the 11 quizzes for acceptable reason.
- **The lowest quiz grade will be dropped.**

Lab Practical

- **Point distribution (50 pts.)**

  - Pre-lab quiz = **5 pts.**
  - Post-lab quiz = **10 pts.** (will be given in huskyCT on Tuesdays at the beginning of lecture, see schedule)
  - Practical = **35 pts**. (Includes report and post-lab questions).

IR / NMR problem set

- **Point distribution (50 pts.)**

  - Pre-lab quiz = **5 pts.**
  - Post-lab quiz = **10 pts.** (will be given in huskyCT on Tuesdays at the beginning of lecture, see schedule)
  - Problem set = **35 pts.**

Final Exam

- **A cumulative final exam will be given in huskyCT on lockdown browser during finals week. Day and time will be announced.** You must be physically in the assigned room to take the final. Taking final remotely is considered academic misconduct. You will be given zero and reported to the community standards.
- Students must visit the Dean of Students Office if they cannot make final exam. The DOS will give the student his or her instructions thereafter.

Grading Scale:

Points Earned (%)	Letter Grade
93.0-100.0%	A
90.0-92.99%	A-
87.0-89.99%	B+
83.0-86.99%	B
80.0-82.99%	B-
74.0-79.99%	C+
66.0-73.99%	C
60.0-65.99%	C-
57.0-59.99%	D+
53.0-56.99%	D
50.0-52.99%	D-
0.00-49.99%	F

Extra credit:

You will be given unannounced extra credit opportunities (worth **20 pts. (2%)** of total grade) in class. You will not get credit if you miss more than two of the extra credits offered. You get maximum **10 pts.** (**1%)** if you miss one and **5 pts.** (**0.5%**) if you miss two. **No make-up** for missed extra credit. No exceptions!

- Extra credit grades are non-negotiable.

Due Dates and Late Policy

All course due dates are identified in the course website, syllabus, on specific work assigned. *The instructor reserves the right to change dates accordingly as the semester progresses. All changes will be communicated in an appropriate manner.*

You will be given enough time to complete lab reports, quizzes, and exams. Late submissions are **NOT** accepted.

Feedback and Grades

- I will make every effort to provide feedback and grades in 48-72 hours. To keep track of your performance in the course, refer to My Grades in HuskyCT.
- **I don't post answers** to **pre-lab** and **post-lab quizzes**. I will review quizzes during discussion (look schedule). You can also schedule one on one meeting with Dr. Beshir to go over your quizzes. PLEASE first try correcting your mistakes on your own before you schedule the meeting.

Weekly Time Commitment

You should expect to dedicate minimum of 10-15 hours a week to this course. This expectation is based on the various course activities, assignments, and the University of Connecticut's policy regarding credit hours. More information related to hours per week per credit can be accessed at the Online Student website.

Student Authentication and Verification

The University of Connecticut is required to verify the identity of students who participate in online courses and to establish that students who register in an online course are the same students who participate in, complete the

course activities and assessments, and receive academic credit. Verification and authentication of student identity in this course will include:

1. Secure access to the learning management system using your unique UConn NetID and password.
2. show ID before assessment.

Assessments

- All assessments are closed note. you are **NOT** permitted to use course website, notes, textbooks, or online resources.
- You are **NOT** permitted to take screenshot, copy, duplicate, save or distribute quiz/exam or individual questions.
- You are **NOT** permitted to obtain assistance or ask for help from or give help to any other person during any assessment.
- Requests for re-grading must be made within **1 week** from the date the grade is made available to the class. A written explanation of the purported error must accompany the request. Criteria for regrades will be discussed in class.

Student Responsibilities and Resources

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important standards, policies and resources, which include:

- The Student Code
  - Academic Integrity
  - Resources on Avoiding Cheating and Plagiarism
- Copyrighted Materials
- Credit Hours and Workload
- Netiquette and Communication
- Adding or Dropping a Course
- Academic Calendar
- Policy Against Discrimination, Harassment, and Inappropriate Romantic Relationships
- Sexual Assault Reporting Policy

➢ Attendance at lectures is expected. You are responsible for **announcements** and **all material presented in lecture.**

➢ My lectures, lecture notes, study guides and assessments are protected by state and federal copyright laws. Students are authorized to use the resources for their own personal use. You are not authorized to record my lectures and my discussions during office hours. Posting of any of my materials including, lecture, lecture notes, handouts, exams, quizzes and assignments to any website and social media site violates this policy.

Students with Disabilities

The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or http://csd.uconn.edu/.

➢ Students approved for double time will start post-lab quizzes at 7:50 AM & pre-lab quizzes 5 min before start of lab time.

Software/Technical Requirements (with Accessibility and Privacy Information)

The software/technical requirements for this course include:

- HuskyCT/Blackboard (HuskyCT/ Blackboard Accessibility Statement, HuskyCT/ Blackboard Privacy Policy)
- Adobe Acrobat Reader (Adobe Reader Accessibility Statement, Adobe Reader Privacy Policy)
- Google Apps (Google Apps Accessibility, Google for Education Privacy Policy)
- Microsoft Office (free to UConn students through uconn.onthehub.com) (Microsoft Accessibility Statement, Microsoft Privacy Statement)
- Dedicated access to high-speed internet with a minimum speed of 1.5 Mbps (4 Mbps or higher is recommended).
- WebCam

For information on managing your privacy at the University of Connecticut, visit the University's Privacy page.

NOTE: This course has NOT been designed for use with mobile devices.

Help

Technical and Academic Help provides a guide to technical and academic assistance.

This course is completely facilitated online using the learning management platform, HuskyCT. If you have difficulty accessing HuskyCT, you have access to the in person/live person support options available during regular business hours through the Help Center. You also have 24x7 Course Support including access to live chat, phone, and support documents.

Minimum Technical Skills

To be successful in this course, you will need the following technical skills:

- Use electronic mail with attachments.
- Save files in commonly used word processing program formats.
- Copy and paste text, graphics, or hyperlinks.
- Work within two or more browser windows simultaneously.
- Open and access PDF files.

University students are expected to demonstrate competency in Computer Technology. Explore the Computer Technology Competencies page for more information.

Evaluation of the Course

Students will be provided an opportunity to evaluate instruction in this course using the University's standard procedures, which are administered by the Office of Institutional Research and Effectiveness (OIRE). Additional informal formative surveys may also be administered within the course as an optional evaluation tool.

Safety:

For your safety during lectures, office hours and review sessions, you are expected to follow university COVID-19 guidelines. https://covid.uconn.edu/campus-guidelines#