Organic Chemistry II Laboratory CHM-29B-1
Course Syllabus – Summer School 2026

Course Meeting Times:
Monday and Wednesday: 1:00 – 5:30 pm Shapiro Science Center 008

Dr. Sinéad M Walsh
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Office: tba

Office Hours:
Monday 11:30 – 12:30 pm
Wednesday 11:30 – 12:30 pm
and by appointment

Teaching Assistants: tba

Lab Supervisor: Quynhthoa Laihuyen (Thoa): qlaihuyen@brandeis.edu (Shapiro Science Center 00-18)

Moodle Site: Check the course site regularly for updates, announcements, readings, lecture handouts *etc*

Course Description
This course is a continuation of CHEM 29A with an emphasis on the synthesis of organic compounds, structure determination, and scientific communication. Techniques learned in CHEM 29A are utilized to synthesize, isolate, and analyze organic molecules. From the start of CHEM 29B, students are expected to be competent in all techniques learned in CHEM 29A. Consider reviewing these concepts and techniques prior to relevant experiments throughout the semester.

Goals of the Course: Upon the completion of the course, students should be able to:

- Interpret spectroscopic data to determine chemical structure.
- Conduct chemical reactions utilizing proper experimental and safety techniques.
- Connect textbook reactions with practical laboratory techniques.
- Understand organic chemistry in the context of scientific literature.
- Develop scientific communication skills through writing lab reports.

Communication
My preferred method of communication is email (in both directions!). When emailing me, please include the course name in the subject line to assist me in quickly determining the context of your communication. I aim to reply within 24 – 48 hours. Emails received after 5pm or on weekends will typically be attended to on the next business day.

Required Materials
1. Textbook: Nichols, L, Organic Chemistry Lab Techniques 2nd Ed 2017. See Moodle for further details.
2. Laboratory Notebook – any bound notebook
3. Safety goggles UVEX S3960C
4. Scientific Calculator
5. ChemDraw Software – available for free for Brandeis students at http://www.brandeis.edu/its/services/software-business-systems/software/index.html.

6. Moodle – online course website. All course materials are available on Moodle
7. Gradescope – all assignments in this course will be submitted to Gradescope. This is where you will see your grades for each assignment also. Make sure to log onto Gradescope with your Brandeis credentials. If you do not see our course in Gradescope, please let Prof Walsh know.
8. Compound structures, physical data, spectra, etc. can be found at http://sigmaaldrich.com.
9. Apps or Tools/Equipment
   In order to complete work for this course you must have access to the following:
   - The internet.
   - A laptop or tablet capable of accessing and completing tasks in Moodle, Echo360, Zoom, Microsoft Office Suite, and Gradescope.
   - A method of uploading images of handwritten work to Gradescope. There are many options for this including a scanner, a digital camera that can connect to your computer/tablet, a scanner app on your phone/tablet, the "Notes" app on an iPhone, etc.
   - PDF Scanner App – for converting images to PDFs on a smartphone. There are many to choose from that are available free of charge. Two good examples are Adobe Convert to PDF and GeniusScan. If you are using an iPhone or an iPad, the Notes app has an option to convert images to PDFs.

If you are having difficulty purchasing course materials, please make an appointment with your Student Financial Services or Academic Services advisor to discuss possible funding options and/or textbook alternatives.

Components of Course Work

Expectations of out-of-class work

Success in this two-credit course is based on the expectation that students will spend a minimum of 4.5 hours of study time per week in preparation for the lab experiments and lab assignments.

Course expectations

To receive credit for this course, students are expected to complete each assigned experiment. Before each lab period, a video will be posted to Moodle that you are expected to watch (see later for details). Each lab period begins with a short, in-person pre-lab discussion with your TA. Students are expected to be on time. Late arrivals and unexcused absences will affect your attendance/participation score. Students are responsible for active participation, for all material presented, and assignments.

Group work and collaboration are essential to your learning. That said, submitted assignments should be the result of each individual's effort unless stated otherwise by the course instructor. If you consult with other students on an assignment, report this in the work that you turn in. Instructors reserve the right to request an oral explanation of answers. If you have questions about what is permitted, please reach out to the instructor.

When submitting an assignment, students are responsible for submitting their work to the correct assignment on Gradescope. Work submitted to the wrong assignment on Gradescope will earn a point deduction or may not earn any credit at all. Credit will not be awarded for assignments where the wrong document is submitted. Students are responsible for submitting their work on time. Students will receive an email from Gradescope when their submission is complete. Late assignment submissions will not be accepted over email. Requests for extensions due to computer or internet issues will not be granted. Submissions that are late due to technical issues will receive the late submission penalty. All the submitted assignments/assessments should bear the students' name and handwritten documents must be legible and organized to be considered for credit.

Grading System

Final grades for this course will be based on the grade percentages below. Lab Reports include lab attendance and performance, pre-lab assignments, lab notebooks, and post-lab assignments. Earned points for assignments will be posted on Gradescope. If you have any concerns about grading, contact the instructor immediately. Do not wait until the end of the semester to voice concerns as nothing can be done at that point.

Class element	Grade percentage
Lab Reports	70%
Spectroscopy Videos and Problems	10%
Final Exam	20%

Lab Reports Grade Breakdown:
Pre Lab Assignments: 25 points
Lab Notebook & Participation: 25 points
Post Lab Write Up: 30 points
Post Lab Questions: 20 points

Letter grade scale:

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
% Range	93.0 - 100	90.0 – 92.9	87.0 – 89.9	83.0 – 86.9	80.0 – 82.9	77.0 – 79.9	73.0 – 76.9	70.0 – 72.9	67.0 – 69.9	63.0 – 66.9	60.0 – 62.9	Below 59.9

1. Lab attendance and performance

Lab attendance is mandatory. Students need to complete the scheduled experiments in order to pass the course. Students are expected to arrive on time for the pre-lab discussion. If you are more than 20 minutes late, you will not be allowed to complete the experiment and will receive a 0 for all assignments associated with the experiment. Due to the compressed nature of the summer session, there are no make-up labs. If you know you will miss a lab, please contact Professor Walsh as soon as possible. If you do not show up to lab, then you will receive a 0 for that lab and ALL associated assignments.

Your performance in the lab will be assessed by the TA's. Lab performance includes following safety regulations and the dress code, displaying proper lab etiquette, overall preparedness for the lab, and cleaning up after each experiment (glassware/benches/workspace). Lab preparation includes familiarizing yourself with techniques relevant to the experiment, attending pre-lab lecture, and completing the pre-lab assignment. Refer to the "Lab Performance" document on Moodle for detailed point deductions.

2. Pre-lab assignments

Pre-lab assignments are designed to prepare students for the experiment. All pre-lab assignments need to be submitted to Gradescope by 12:55PM on the day of lab. Students are not allowed to complete the experiment if they do not turn in a complete pre-lab assignment. The pre-lab assignment includes the purpose of the experiment, chemical information, and answers to the pre-lab questions. The TA will confirm that the submission was made on Gradescope and completed in the lab notebook prior to the start of the experiment. Students will be asked to leave the lab if the pre-lab assignment is not complete. Students may return to the lab if the pre-lab assignment is submitted before 1:20 pm on the day of lab or receive a score of zero on all assignments pertaining to the particular experiment. The late penalty is a 5-point deduction.

For more details about the pre-lab assignment, please see our Moodle site.

3. Lab notebook

Students are required to maintain a proper scientific lab notebook for each experiment. Lab notebooks can be any notebook in which the pages are not easily removed and should not contain work for any other classes. Lab notebooks should contain the pre-lab assignment prior to the start of the lab. Your TA will confirm that your notebook is complete prior to letting you begin the experiment.

The lab notebook is an account of what was done during the experiment and therefore all observations and data need to be completed by the end of the lab period. The TA will review your notebook and sign it at the end of each experiment. It is recommended that each experiment entry on the lab notebook be submitted to Gradescope immediately after the completion of the experiment and can be submitted up until 11:59 pm on the same day that your post-lab write up is due. Late notebook submissions will receive a deduction of 5 points for submissions made between 0-24 hours past the deadline, followed by an additional 5-point deduction for each successive day. Since the assignment is worth 25 points, submissions more than 5-days late will not be accepted. Due dates for each assignment are available on Gradescope.

4. Post-lab assignments

Post-lab assignments are designed to help students analyze and interpret experimental data while making connections to concepts learned in the Organic Chemistry lecture course. Post-lab assignments must be completed individually even when the lab work is done with a lab partner. Post-lab assignments need to be submitted on Gradescope by 11:59 pm on Friday (for the Monday lab) or Sunday (for the Wednesday lab). This is typically 5 days after the completion of the experiment. Refer to Gradescope for the most up-to-date information on lab due dates. Late post-lab assignments will receive a penalty of 5 points for the first 0-24 hours past the due date, followed by an additional 5-point deduction for each successive day. Submissions more than a week late will not be accepted.

Every student gets 1, no questions asked, 24-hour extension on a post-lab assignment during the semester. For the single extension to apply, students must send the request for the extension to their TA and cc the course instructor, prior to the assignment deadline. The extension is only for post-lab assignments and does not apply to lab notebooks or pre-lab assignments.

5. Final Exam

There will be a final lab exam during the summer semester. Students will be expected to apply their understanding of the experiments to relevant scenarios, explain spectroscopy theory, and solve spectroscopy problems. Partial credit will be given for exam problems if the problem is set up correctly. You must show all the work required to reach the answer, only in this way can partial credit be awarded. **The final exam is scheduled for Friday August 7th at 9 am (note time is not the same as our lab meeting time). Location will be communicated during the semester.**

Please review the course schedule and notify the instructor immediately of any conflicts including religious observance. Visit the Office of the University Registrar website on religious observance for additional information.

6. Lecture participation

Lab Lectures – There will be three types of lectures for this course:

Conceptual Prelab Videos – These prelab lectures will focus on the conceptual background behind the experiments. These will be prerecorded videos posted on Echo360 that students are required to watch prior to the relevant experiment as part of their lab preparation. Echo360 tracks whether or not students watch videos as well as how much of the video is watched and I will regularly check these statistics. If you do not watch the lecture prior to the start of lab you will not be allowed to do the experiment as you are unprepared and therefore a safety hazard to everyone around you. You must watch the videos on your own laptop, not with a friend, or your completion of the videos will not be properly recorded. These prelab lectures will be helpful for completing the prelab assignment for each experiment. The conceptual background of each experiment will be a major component of the final exam.

Technical Prelab Lectures – These prelab lectures will be delivered in person by your TA at the start of each lab session. They will focus on how to properly conduct the relevant lab techniques for that experiment. It will be assumed in these lectures that you have already watched the conceptual prelab video.

Spectroscopy Lecture Videos – Spectroscopy is an important component of organic chemistry. A variety of spectroscopic techniques are used to identify organic compounds in this course. This semester we will learn about H-NMR spectroscopy. This will be covered in videos posted to Echo360 and problem-solving sessions during two of the lab sessions. The videos will be paced throughout the semester such that, if you follow the schedule, you will learn everything you need in time for each problem-solving session and the final. It is highly recommended that you stick to this schedule (at a minimum, feel free to get ahead if you want to). These lectures will also have questions integrated into them which you are required to complete by August 8 (last day of semester). They are graded for completion, not correctness, and are part of your final course grade. There will be 2 spectroscopy problem solving session during the semester. They will run for the last hour of lab (4:30 – 5:30) on the day they are scheduled (details will be communicated on Moodle). If everyone finishes their experiments before 4:30 we may begin the session earlier such that it can end earlier. It will be no more than one hour and will not go past 5:30. The problems from these sessions will be due on Gradescope **at 9 am on Friday, August 7**. Late work will not be accepted. There will also be spectroscopy material on your final exam.

7. Regrades

If you suspect that there was an error in grading, you may request a regrade within <u>one week</u> of the document being returned. Requests made more than one week after the document is returned will not be honored.

To request a regrade on pre-lab, lab notebooks, or post-lab assignments you will first need to meet with your TA to discuss the reason for the point deduction. If that does not resolve the issue, you may submit a regrade request on Gradescope with a description of your discussion with your TA and which grading rubric item is a better fit.

To request a regrade on an Exam, you will first need to review the answer key thoroughly and compare it to your work. Consider meeting with your TA as they can help with this process. If you still believe that there was an error, you may submit a regrade request on Gradescope with a description of how your answer compares to the answer key, and which rubric item you think is a better fit.

Course Policies

Lab safety

Safety in lab is our number one priority. We will cover necessary safety considerations regularly throughout the semester and safety resources will be available on Moodle. The following list highlights some of the most important safety regulations that will be enforced in lab. Not following these will result in deduction of lab performance credit. For some violations, you must leave the lab and fix the violation before you will be allowed to do the experiment. Continued violation may result in removal from the lab session or the course.

• Lab goggles must be worn properly at all times in the lab. Even if you are not actively working with a chemical one of your classmates may be. If you wear glasses, you must wear lab goggles over your glasses. Glasses are not designed to protect your eyes from splashes and are therefore not appropriate for safety purposes. Contact lenses may be worn but please inform your TA if you wear contacts in lab so they are aware in the event of an emergency.

• Proper lab attire is required. This includes:

- Long pants, skirts or dresses that reach to the ankle. Capris, ¾ pants, short skirts/dresses and shorts are not allowed unless tights or leggings are worn underneath them.
- Shoes that fully enclose the foot and do not have open backs. Sandals, ballet flats, clogs, and crocs are a few examples of inappropriate shoes.
- Long hair must be tied back. If your hair is long enough to easily stay confined in a ponytail then it should be tied back.
- Shirts must, at a minimum, reach the edge of the shoulder. Spaghetti strap or strapless tops are not allowed.

- Shirts must fully cover your midriff (front and back) while both standing and moving. If you reach your arms above your head and your stomach or back becomes exposed then the shirt is not acceptable for lab.
- Clothing should not be overly loose or baggy, especially sleeves. Baggy sleeves can easily knock things over on the lab bench.

• Personal laptops and tablets are not allowed in the organic lab and should be kept in your backpack. We will regularly work with solvents that can easily destroy your laptop/tablet in seconds if they are spilled on it. Make sure to submit all your assignments on Gradescope before entering the lab.

• Cell phones are not to be used in the organic lab. There are two reasons for this. First, when you are on your cell phone you are not paying attention to your surroundings, which is a major safety hazard in the lab. Second, many of the solvents that we work with in the lab can easily destroy your phone in seconds if they are spilled on it. If you need to use your cell phone for any reason, step out of the lab area to do so. If your TA or an instructor sees you with your cell phone out during lab, you will be asked to put it away and lose participation credit. If you are found using your cell phone frequently you may be asked to leave the lab and receive a 0 for that lab report. If you have something going on outside of the lab that will necessitate having access to your phone during lab, please discuss this with the lab instructor and/or TA prior to the start of the lab session.

• It is advised that you do not wear smart watches while working in the organic chemistry lab. These will not be prohibited but you are assuming the risk of something spilling on it and destroying it if you choose to wear it in lab.

• No food or drink of any kind is allowed in the lab.

• Gloves must be worn at all times when working on your experiment in the lab. Remove gloves before leaving the lab. Do not use gloves on door handles, while handling personal items such as your cell phone, and avoid touching your face with gloves on.

• Smoking and vaping are not allowed in the lab.

• Chewing gum is not allowed in the lab.

Academic honesty

You are expected to be familiar with, and to follow, the University's policies on academic integrity. You are expected to be honest in all of your academic work. Students may only use data that is not their own in a lab report if given permission to do so by the course instructor or teaching assistant. Crediting the source (classmate, TA, etc.) is necessary under these circumstances. The fabrication or alteration of data, including making up data or changing experimental results, constitutes a breach of academic integrity. Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students should consult with their course instructor prior to submitting any assignment if they have any uncertainties regarding the standards of academic honesty. Allegations of alleged academic dishonesty will be forwarded to Student Rights and Community Standards. Sanctions for academic dishonesty can include failing grades and/or suspension from the university. Citation and research assistance can be found on the university library website.

Academic accommodations

Brandeis seeks to create a learning environment that is welcoming and inclusive of all students, and I want to support you in your learning. If you think you may require disability accommodations, you will need to work with Student Accessibility Support (SAS). You can contact them at 781-736-3470, email them at access@brandeis.edu, or visit the Student Accessibility Support home page. You can find helpful student FAQs and other resources on the SAS website, including guidance on how to know whether you might be eligible for support from SAS.

If you already have an accommodation letter from SAS, please provide the instructor with a copy to ensure effective implementation of accommodations for this class. In order to coordinate exam accommodation, the accommodation letter needs to be provided to the instructor at least 48 hours before the assessment. Note that accommodations cannot be provided retroactively.

Some laboratory techniques may require a certain level of physical dexterity and coordination to conduct the experiment safely. To ensure the safety of all students, those with temporary or permanent mobility challenges must first demonstrate that they are able to safely perform the experiment using water instead of chemicals. This demonstration will be conducted under the supervision of the course instructor and a representative from SAS. Students must be able to perform lab experiments safely and with minimal assistance to participate in this course. Students with temporary or permanent mobility challenges are encouraged to contact the course instructor and SAS for additional support and accommodations.

Inclement weather

Regular class and lab sessions will occur as scheduled unless the university is officially closed due to inclement weather. In the event of university closure, in-person lectures and labs will be cancelled for that day. changes to the class schedule will be communicated via Moodle. Since assignments are turned in online, all assignments are still due at the originally scheduled time even if a class is canceled.

Respectful environment

Brandeis University is committed to providing its students, faculty, and staff with an environment conducive to learning and working, where all people are treated with respect and dignity. Please refrain from any behavior toward members of our Brandeis community, including students, faculty, staff, and guests, that intimidates, threatens, harasses, or bullies.

Laptop computer and cell phone use

Access to a laptop, tablet, or cell phone capable of accessing and completing tasks on Moodle, Echo360, Zoom, G-Suite, and Gradescope will be required for lecture. However, use of personal electronics (laptops, tablets, cell phones) are not permitted in the laboratory. Organic solvents will easily destroy your electronics. Chemicals used in the laboratory may contaminate the surfaces of your electronic device, making it a safety hazard. If you need to use your electronic device, step out of the lab area to do so. For circumstances that necessitate having access to your cell phone during lab, please discuss this with the instructor and/or TA prior to the start of the lab.

AI generative tools

It is important to remember that chatGPT and other AI tools are not a replacement for your own critical thinking and original ideas. The ultimate goal of this course and any tool used to submit work is to enhance your own learning and understanding, not to undermine it.

As a college student, it is your responsibility to maintain the highest standards of academic integrity. Representing work generated by artificial intelligence as one's own work is considered to be academically dishonest. It is your responsibility to ensure that all work submitted for grades is your own original work. Properly cite any sources that you use. If you have questions about what is permitted, please reach out to the instructor.

Schedule of Lab Experiments:

Date	Experiment	PreLab Due	Lab Notebook Due	Postlab Write up Due
Monday July 6	Tempo Oxidation	7/6 12:55 pm	7/10 11:59 pm	7/10 11:59 pm
Wednesday July 8	Reductive Amination	7/8 12:55 pm	7/12 11:59 pm	7/12 11:59 pm
Monday July 13	Identification of Unknown compound	7/13 12:55 pm	7/17 11:59 pm	7/17 11:59 pm
Wednesday July 15	Fischer Esterification	7/15 12:55 pm	7/19 11:59 pm	7/19 11:59 pm
Monday July 20	Wittig Reaction & Chemiluminescence	7/20 12:55 pm	7/24 11:59 pm	7/24 11:59 pm
Wednesday July 22	Aldol Condensation	7/22 12:55 pm	7/26 11:59 pm	7/26 11:59 pm
Monday July 27	Electrophilic Aromatic Substitution	7/27 12:55 pm	7/31 11:59 pm	7/31 11:59 pm
Wednesday July 29	Nucleophilic Aromatic Substitution	7/29 12:55 pm	8/2 11:59 pm	8/2 11:59 pm
Monday August 3	Diels Alder Reaction	8/3 12:55 pm	8/3 11:59 pm	8/3 11:59 pm
Wednesday August 5	No lab scheduled.			