

**University of Wisconsin-Madison**  
**CHEM 342: Elementary Organic Chemistry Laboratory**

Contact Information

Matt (Doc) Bowman

262-2519

Chem 5232 (old office)

or Chem 1325 (new office) I do not know when I will move.

bowman@chem.wisc.edu

1 credit

Matt Bowman's Office Hours

Scheduled

Monday 9:00-11:30 AM Chem 1371 (except on 9/16: Chem B379)

Tuesday 9:00-11:30 AM Psych 134

Wednesday 1:00-3:00 PM Chem 1371 (except on 9/18 and 10/2:Psych 115)  
(or by appointment)

***How Credit Hours are Met:*** The University defines one credit as the learning that takes place in *at least* 45 hours of learning activities, which include time in lectures or class meetings, in person or online, labs, exams, presentations, tutorials, reading, writing, studying, preparation for any of these activities, and any other learning activities. The course meets 12 times (approximately once per week) for *at most* 4 hours. There is a final exam that takes 2 hours. Students are expected to spend at least 90 min in preparation outside of class for the laboratory. Bringing the estimated time to 68 hours.

**Course Description:** Chemistry 342 introduces organic laboratory techniques in synthesis, purification and spectral interpretation. The course is designed to accompany Chemistry 341 and topics closely follow Chemistry 341. Enroll Info: Completion of or concurrent enrollment in Chem 341. For students who expect to take only one semester of organic chemistry and need only a single laboratory credit. Enrollment not permitted for students who have completed Chem 344

**Prerequisite:** CHEM 341 or concurrent enrollment; not open to students who have completed CHEM 344

**Course Designations:** Intermediate level; physical science breadth; counts as L&S credit

**Instructional Mode:** face-to-face

### Course Meeting Times and Locations:

#### Section 301:

TA: Cara Schwarz [ceschwarz@wisc.edu](mailto:ceschwarz@wisc.edu)

Mondays 5:40-9:45 Start in Chem 2307

First Day: September 9

Canvas URL: <https://canvas.wisc.edu/courses/153128>

TA Office Hours: Tuesday 5:40-6:30 PM Chem B317

Thursday 2:25-3:15 PM Chem B317

#### Section 302:

TA: Josephine Eshon [jeshon@wisc.edu](mailto:jeshon@wisc.edu)

Tuesdays 5:40-9:45 Start in Chem 2381

First Day: September 10

Canvas URL: <https://canvas.wisc.edu/courses/153123>

TA Office Hours: Friday 4:35-6:30 PM Chem B317

#### Section 303:

TA: Jess Roberts [jroberts24@wisc.edu](mailto:jroberts24@wisc.edu)

Fridays 1:20-5:25 Start in Chem 2377

First Day: September 6

Canvas URL: <https://canvas.wisc.edu/courses/153132>

TA Office Hours: Thursday and Friday 8:50-9:40 AM Chem B317

The above TA office may change due to TA schedule conflicts that pop up.

Up to date office hours for all Organic Chemistry TA's can be found at:  
[https://www.chem.wisc.edu/deptfiles/OrgLab/handouts/Organic\\_TA\\_Office\\_Hours\\_Fall\\_2019.pdf](https://www.chem.wisc.edu/deptfiles/OrgLab/handouts/Organic_TA_Office_Hours_Fall_2019.pdf)

### **Chemistry 342 Learning Outcomes**

Students will understand the role of spectroscopy and spectrometry in organic structure elucidation and be able to use spectral data to analyze pure samples and product mixtures.

Students will understand and be proficient in the safe use of basic apparatus, glassware, and techniques for the synthesis, isolation, and purification of organic molecules.

Students will be able to adapt literature examples to make target products. Students will be able to understand basic fundamental properties of organic molecules from their structure.

## **McBurney Accommodations**

If you have McBurney accommodations, please request a Faculty Notification Letter through McBurney Connect. You are encouraged to email Dr. Matt Bowman and your TA if you would like to arrange an individual meeting. Please do this as close to the start of the semester as possible to allow us to better accommodate your needs. Accommodations for exams and quizzes will be coordinated with the chemistry undergraduate office.

### **McBurney Disability Resource Center syllabus statement**

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility.

Students are expected to inform the course instructors and their TA of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Instructors and TAs will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

<http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php>

### **Health-related Accommodations**

If you have health-related issues (such as severe allergies, chemical sensitivity, respiratory illnesses, etc.) that may impact your participation in the lab course, please contact Dr. Matt Bowman to arrange a meeting. Students who are pregnant or are trying to become pregnant should contact a laboratory director immediately. Please contact us as soon as possible prior to the start of lab work.

### **Institutional statement on diversity**

Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.

<https://diversity.wisc.edu/>

### **CHEM 342 Evening Section Exam Policy**

Instructors of daytime courses often schedule evening exams that conflict with a scheduled CHEM 342 meeting time (5:40 pm – 9:45 pm).

According to the timetable and Faculty Document 1585a:

"Instructors who schedule evening exams should make every possible effort to accommodate students with unavoidable conflicts. It is the instructor's responsibility to assure that all students with conflicts between daytime courses with evening exams and evening courses are treated fairly and without penalty.

If a scheduling conflict exists between the evening exam of a daytime course and a regularly scheduled evening course, then the evening course takes precedence over the exam."

It is your responsibility to check for any evening exam conflict(s) and contact the instructor of the daytime course as soon as possible so an accommodation can be made.

## **CHEM 342 Lab Safety Policies**

You are required to follow the rules and guidelines discussed in the lab safety presentation at the start of the semester.

In summary:

Place book bags, coats etc. in the hanger area at the side of the lab

You must wear long pants and a lab coat.

No sandals, flip-flops, open-toed/heeled shoes!

Your entire foot must be covered by shoes or a combination of shoes and socks

Gloves, goggles, and lab coats must be worn at all times in the lab

The only exposed skin can be your arms, neck, and part of your face.

Gloves must be removed and discarded before leaving the lab

Don't wear anything that you care about – someone or something will ruin it! Do not eat/drink/chew in the lab

Do not inhale chemicals

No smoking or open flames

Laptops, iPods (and similar) and cell phones are not allowed in the lab  
Follow all safety instructions given by your TA! Access to the lab

The only times that you are allowed access to the organic teaching labs are during the scheduled meeting times for the lab session in which you enrolled. You may not work in the lab at any other time. Unless you are enrolled in the scheduled lab session you are not allowed in the lab. There are no visitors allowed.

### Required Materials:

Laboratory notebook

Safety goggles (*not safety glasses*)

Fall 2019 Chem 342 Laboratory Manual

Lab Coat

## **Grades**

Each section will be treated independently. At the end of the semester, the total points values will be listed out and the grade cutoffs will be placed where there are significant gaps in points. The course will be curved so the GPA of all the sections will be close to 3.2.

C's will be awarded to students with scores more than two standard deviations below the average. D's will be awarded to students that fail to submit lab reports. F's will be awarded to students that miss multiple lab sessions.

Points will be earned based on your conduct in lab, prelab exercises (at the end of each chapter in the lab notebook), post lab exercises (handed out in lab), product quality, quizzes, and the final exam).

## **Quizzes**

There are 3 quizzes given during CHEM 342. Each quiz will be worth 30 points. The quizzes will mainly focus on the most recent subjects, but organic chemistry is cumulative, so questions regarding concepts/techniques taught in earlier experiments are fair game.

## **Lab Practical**

During the last week of lab, there will be a lab practical. Essentially, you will be asked to repeat one of the experiments you have done this semester with minor alterations. You will not know which experiment you will be doing until that day. Also, you will not be able to use the lab manual. You can only use your lab notebook, calculator, and a periodic table.

## **Final Exam**

There will be a final exam on December 13 from 7:45-9:45 AM. This date was set by the registrar. It will be worth 100 points.

### Grading Guide for CHEM 342 Lab Reports

Experiment	PreLab	Lab	PostLab	Product
NMR			37	--
PC	15	--	15	--
Distillation	15	2	15	--
Extraction	15	4	15	--
Lab Skills	15	2	15	--
Substitution	15	2	15	--
Elimination	15	2	15	--
Reduction	15	2	15	5
Imine	15	2	15	5
Ester	15	2	15	5
Amide	15	2	15	--
Grignard	15	2	15	5
Lab Practical	--	35	--	5
<b>Total points</b>	<b>165</b>	<b>57</b>	<b>202</b>	<b>25</b>

A Pre-Lab sheet for each experiment can be found in the lab manual. These sheets must be filled out and turned into the TA at the start of the discussion. It is vital that you work through these sheets as you will need the information for the lab experiment itself. The experiment that you will be performing may not be the one in the lab manual. As a result, you will need to run some calculations before you begin the experiment.

The Lab points are based on your performance during the lab period. Most of the time you will receive these 2 points. However, if you come to lab without your goggles, wear inappropriate footwear, do not write in your notebook during the lab, or fail to recap reagent bottles these points will be forfeit. Also, if you endanger yourself or others, it is entirely possible for you to lose more than 2 points.

The postlab worksheet will be posted on Canvas. Your TA will have hardcopies of this worksheet for you to fill out. On it will be several questions for you to answer on your own regarding the experiment. This will be due on the indicated date along with the spectra from your submitted samples and a copy of your notebook pages.

Product points will be assigned by Matt on experiments where everyone makes the same product. These will be assigned based on the quality of the spectra, so be extra diligent in preparing samples.



## Chem 342 Fall 2019 Lab Schedule: Section 301

Date	Lab Experiment	Lab Report Due
September 9	Lab Check-In/NMR	September 16
September 16	Distillation and Part. Coefficients	September 23
September 23/30	Extraction	October 7
October 7	Lab Skills	October 14
October 14	Substitution	October 21
October 21	Elimination	October 28
October 28	Reduction	November 4
November 4	Imine	November 11
November 11	Ester	November 18
November 18	Amide	November 25
November 25	Grignard	December 9
December 2	No Lab	
December 9	Lab Practical	December 9

Reports are due at the end of the lab period on the given day. Late work penalties will be applied to reports turned in after this deadline.

### CHEM 342 Late Work Policy

Work submitted up to one day after the stated submission deadline will receive a maximum of 50 % of the total points available. Work submitted over one day late will not be graded. It is your responsibility to be aware of all deadlines for submission of work to your TA.

### Quiz Schedule:

October 7, November 4, November 18

## Chem 342 Fall 2019 Lab Schedule: Section 302

Date	Lab Experiment	Lab Report Due
September 10	Lab Check-In/NMR	September 17
September 17	Distillation and Part. Coefficients	September 24
Sept. 24/Oct.1	Extraction	October 8
October 8	Lab Skills	October 15
October 15	Substitution	October 22
October 22	Elimination	October 29
October 29	Reduction	November 5
November 5	Imine	November 12
November 12	Ester	November 19
November 19	Amide	November 26
November 26	Grignard	December 10
December 3	No Lab	
December 10	Lab Practical	December 10

Reports are due at the end of the lab period on the given day. Late work penalties will be applied to reports turned in after this deadline.

### CHEM 342 Late Work Policy

Work submitted up to one day after the stated submission deadline will receive a maximum of 50 % of the total points available. Work submitted over one day late will not be graded. It is your responsibility to be aware of all deadlines for submission of work to your TA.

### Quiz Schedule:

October 8, November 5, November 19

## Chem 342 Fall 2019 Lab Schedule: Section 303

Date	Lab Experiment	Lab Report Due
September 6	Lab Check-In/NMR	September 13
September 13	Distillation and Part. Coefficients	September 20
September 20/27	Extraction	October 4
October 4	Lab Skills	October 11
October 11	Substitution	October 18
October 18	Elimination	October 25
October 25	Reduction	November 1
November 1	Imine	November 8
November 8	Ester	November 15
November 15	Amide	November 22
November 22	Grignard	December 6
November 29	No Lab	
December 6	Lab Practical	December 6

Reports are due at the end of the lab period on the given day. Late work penalties will be applied to reports turned in after this deadline.

### CHEM 342 Late Work Policy

Work submitted up to one day after the stated submission deadline will receive a maximum of 50 % of the total points available. Work submitted over one day late will not be graded. It is your responsibility to be aware of all deadlines for submission of work to your TA.

### Quiz Schedule:

October 4, November 1, November 15

## CHEM 342 Reading Assignments Fall 2019

Since this course is to be taken concurrently (or after) Chem 342, we will be using *Organic Chemistry with a Biological Emphasis volumes I and II* by Timothy Soderberg.

The textbook can be downloaded free of charge at [http://facultypages.morris.umn.edu/~soderbt/textbook\\_website.htm](http://facultypages.morris.umn.edu/~soderbt/textbook_website.htm)

The content of a pre-lab discussion section will be based upon the material found in the corresponding chapter of the Soderberg textbook and the current CHEM 342 lab manual. However, your TA may introduce concepts that are not covered in the textbook or the lab manual. It is your responsibility to be familiar with **all** concepts covered in the discussion.

<b>CHEM 342 topic</b>	<b>Page # in Soderberg</b>
NMR	Vol. 1. Pg. 235-282
Distillation/Partition Coefficients	Vol. 1. Pg. 102-115
Extraction	Vol. 1. Pg. 102-115 Vol. 1 Pg. 335-373 (Acid/Base)
Substitution	Vol. 1 Pg. 385-423
Elimination	Vol. 2 Pg. 241-246
Reduction	Vol. 2 Pg. 300-301
Imine	Vol. 2 Pg. 76-79
Ester	Vol. 2 Pg. 95-137
Grignard	Not covered
Amide	Vol. 2 Pg. 95-137
Aldol	Vol. 2 Pg. 159-171

Video lectures pertaining to these experiments will also be made available on canvas.

## **CHEM 342 Academic Misconduct Policy**

All work submitted by a student for grading in CHEM 342 is required to be the product of that student alone. This will be assumed to be the case unless the work is clearly labeled otherwise. In the laboratory, this means that all lab work is carried out by the student and the data obtained is recorded directly into the notebook. The data recorded must pertain to actual measurements and observations made by the student on their own experiment (even when working in pairs or as a group). Calculations, assignment of spectroscopic data, answers to pre- and post-lab questions and all other items submitted for grading must be the original work of the student.

Submission of work copied directly from a textbook, website, journal article, from a current or previous lab report, or any other source without citation or reference is considered to be plagiarism and will be dealt with according to University guidelines.

Information as to what constitutes academic misconduct is available on the website of the Office of the Dean of Students ([www.wisc.edu/students/](http://www.wisc.edu/students/)). It is your responsibility to understand and be familiar with these guidelines

### ***Mental Health Resources:***

I realize you are under a lot of pressure. Some of that pressure is internal and some of that is external. Regardless of the source of the pressure, the pressure is very real. Students have a tendency to equate grades with future happiness. It is an understandable connection, but not really a true one. I have quite a few C's on my undergraduate transcript (a few in chemistry) and I still ended up with my dream job. I have had a student that received an F in organic chemistry and had to retake the class. She went on to medical school. So, a low grade is not the end of the world.

**If disaster happens or at anytime you feel that you cannot cope with something, or just need to vent, there are resources available on campus for you. Take advantage of them.**

#### *University Health Services (UHS):*

Offers group, individual, couple/partner therapy stress management, and disordered eating assessments and treatment at no cost. It also provides massage therapy, yoga, and other wellness services.

Student Activity Center 7<sup>th</sup> floor 608-265-5600

[www.uhs.wisc.edu/mentalhealth/getting-started](http://www.uhs.wisc.edu/mentalhealth/getting-started)

#### *Ask.Listen.Save:*

*Ask.Listen.Save. is a student org that aims to prevent suicide by reducing the stigma of mental illness. Through educating the student body, they aim to increase the awareness and create a safe environment in which students know they are not alone and can feel free to ask for help.*

Student Activity Center Suite 3196 [www.Asklistensave.org](http://www.Asklistensave.org)

#### *Badgerspill:*

BadgerSpill is a peer-to-peer support network of and for UW-Madison students. You can write in online to "spill" or vent privately about whatever you are going through and get unbiased feedback, empathy, and resources from other students who have dealt with similar situations. Both parties are anonymous to one another and the spiller gets multiple responses within 24 hours.

[www.badgerspill.com](http://www.badgerspill.com)

Please look on the canvas page for the mental health resource sheet for more resources.