

## Organic Chemistry 242 Laboratory Syllabus, Spring 2026

### Lab Coordinator:

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### Lab Instructors:

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See Canvas page for your instructors' contact info, office hours and office location.

**I. Course Description:** This course provides you with a unique opportunity to do the reactions which you read about in your lecture course. Concepts in Chem 242 will build on those from Chem 241, so it is important that you have a strong understanding of the reactions and techniques that you learned about in Chem 241. In this course you will gain a basic understanding of common laboratory procedures and techniques of organic chemistry. Before every meeting there will be an online quiz to monitor preparation for the day's work.

Each lab will have a written report assignment to assess how well the experiment was understood. Therefore, it is necessary to be fully prepared to complete the experiment as well as the worksheet for each lab. This course relates hands on skills in the laboratory environment to the interpretation and presentation of experimental findings. You are expected to attend every lab session this semester.

### II. University Statements:

We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse. If you need course adaptations or accommodations because of a disability, please contact the instructor of record as soon as possible. Ball State's [Disability Services](#) office coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability Services can be contacted at 765-285-5293 or [dsd@bsu.edu](mailto:dsd@bsu.edu).

### Student Academic Ethics Policy

Honesty, trust, and personal responsibility are fundamental attributes of the university community. Academic dishonesty and other forms of academic misconduct threaten the foundation of an institution dedicated to the pursuit of knowledge and will not be tolerated. To maintain its credibility and reputation, and to equitably assign evaluations of scholastic and creative performance, Ball State University is committed to maintaining a climate that upholds and values the highest standards of academic integrity. Visit the VPAA's academic integrity website (Students tab) for resources on understanding academic integrity, citing sources properly, and avoiding inadvertent academic dishonesty. To learn about BSU's academic integrity expectations and students' rights, please read the University Student Academic Ethics Policy.

Academic integrity violations include giving or receiving an unfair academic advantage (cheating), presenting someone else's ideas or work as your own (plagiarism), and falsifying academic records. Unless otherwise indicated, you must work independently by yourself. Check with me if you are unsure whether something constitutes academic dishonesty. Examples of academic integrity violations include but are not limited to:

- Using resources not authorized by the faculty member (including devices, AI tools, hidden notes, and open books)
- Using commercial study websites to find answers to graded assignments (Chegg, Course Hero, StudyPool, OneClass, etc.).
- Without the instructor's written permission, giving away, buying, or selling graded assignments class notes, exams, study guides, or other course materials to other students or to third-party vendors (Course Hero, Chegg, 24HourAnswers, etc.).
- Working with another person on any assignment other than authorized group projects.
- Sharing or allowing others to access your files, whether done with permission or not.
- Reusing your own work from another semester, course, or section.
- Sharing answers with others during exams (passing notes, texting, whispering, gesturing)
- Discussing exam questions and answers with students who have not taken the exam.
- Soliciting others to complete work for you.

**III. Purpose of the Course:** This course is intended to provide students with an opportunity to increase their knowledge and understanding of chemistry. The successful student will leave with a basic understanding of common laboratory procedures, and an ability to relate and apply course material.

*All individuals have different ways of learning. The organization and requirements of any course will affect each student differently. Please contact me as soon as possible if you are experiencing any challenges related to successful completion of course requirements, communication with your instructors and/or TAs, or understanding of course material. Please contact me as soon as possible if you need alternative arrangements in case the building must be evacuated. The primary goals of this course include consistent support and open communication.*

**IV. Required Supplies for Each Lab:**

A lab notebook; either a composition notebook with permanently bound pages, or a carbonless copy notebook (not spiral bound), and a pen  
Safety Goggles  
Lab Coat  
Clothing which covers all skin below the rib cage including the ankles  
Flat soled shoes that cover the entire foot (no ballet flats, sandals, etc.)  
A Stapler  
"Organic Chemistry Lab Survival Manual" by James Zubrick. Any recent edition.

**V. Attendance:** Full performance in the laboratory requires regular and punctual class attendance. Absences and late arrivals will result in point deductions from assignments, quizzes, and/or reports. Due dates and lab credit will not be extended unless there are extenuating circumstances:

- Adequate paperwork clarifying Ball State University representation activities must be presented no later than 3 days before the event.
- In the event of an unforeseeable event (illness, bereavement, etc), please provide a copy of some form of documentation (a medical certificate in the case of illness, or a brief note or e-mail message in other events).

In both cases, accommodations can, and likely will be made. This may require 'make-up' laboratory sessions. Contact must be established as quickly as possible.

Punctual and consistent attendance is a course requirement. The grades for your worksheets and lab reports will be impacted by preparation and attendance.

## VI. Lab Reports

Lab reports and scans of all notebook pages will be turned in on the appropriate assignment on Canvas for plagiarism checks. *Hard copy lab reports will also be turned in for grading purposes.*

**VII. Lab Notebooks** You will be expected to maintain a notebook this semester, just like you did for Chem 241. You will turn in pre lab questions as pdf scans on Canvas the evening before lab begins. You will turn in pdf scans of your notebook entry for the lab day on Canvas within one hour of completing the lab.

**VIII. Grading:** Written lab reports range from 20-30 points and they are generally due about 1 week after you complete the activity in the lab.

The approximate score ranges are as follows (although I reserve the right to modify these slightly if necessary):

|    |            |    |            |    |            |
|----|------------|----|------------|----|------------|
| A  | 93 – 100   | B- | 77 – 79.99 | D+ | 62 – 64.99 |
| A- | 89 – 92.99 | C+ | 74 – 76.99 | D  | 55 – 61.99 |
| B+ | 86 – 88.99 | C  | 68 – 73.99 | D- | 50 – 54.99 |
| B  | 80 – 85.99 | C- | 65 – 67.99 | F  | < 50       |

20% point deductions will occur when adequate safety precautions are not followed during lab (wear goggles and adequate clothing in the lab)

20% point deductions will occur as a result of tardiness to pre-lab.

20% point deductions will occur as a result of slightly late reports (a slightly late report is a report which is turned in between 1 second to 10 minutes late).

50% point deductions will occur as a result of late reports within 48 hours. After 48 hours, reports will not be accepted, and you will receive a zero score.

100% point deductions will occur as a result of answers/responses copied from other students, from the internet, from ChatGPT or any other online resource.

Before each lab, composition lab notebooks must be completed. Your composition lab notebook will be checked for each experiment, and incomplete preparation will result in not earning 1 point for the notebook assignment in Canvas.

**Notebook** preparation: The front page of your notebook must contain a table of contents, pages must be numbered, your name should be written in the upper right-hand corner of every page, and everything must be written using blue or black ink, **NOT PENCIL**. For all experiments you must have at least a title, brief introduction, a space for the lab procedure, and an outlined results section. Carefully read the experimental handout to assess whether anything else is necessary for notebook preparation. Data and observations should be entered directly into the notebook at the time you made the measurement or observation. Do not erase, scribble over, or use correction fluid in your notebook. Rather, mark a single line through any inaccurate or mistaken entry. Remember, your book will be assessed on the basis that it is a *working* document. **You should not be writing observations on pieces of scrap paper or on worksheets. Spiral bound books are NOT acceptable.**

### **Additional Considerations**

Grading for quizzes, MOWs, pre-lab quizzes, and typed reports is considerably more detailed than you may have experienced in previous courses. It is necessary to fully understand the question/assignment to receive a passing grade. Attempt to answer as many questions as possible for your MOWs and Experimental Worksheets BEFORE pre-lab begins. Please continue to ask questions during both pre-lab and during lab if you do not fully understand any aspect of the laboratory experiments, how these experiments relate to class material, and/or any of the content on the Multidimensional Organic Worksheets.

It is important to understand the purpose of each step in each experiment. If you understand why you are doing what you are doing before you walk into the lab, you are more likely to successfully complete the experiment with extra time to start working on the report. Please ask all questions related to lab expectations, assignments, course material, lab procedures, and lab report expectations throughout the semester. It will be beneficial for both you and your classmates.

## **IX. SAFETY**

**The number one priority in this laboratory course is safety** – personal and environmental. You therefore should be aware of your own safety, that of others in the lab, and that of people outside of the lab. Chemistry is a discipline that requires an awareness and appreciation of safety issues. You must exercise all care in the handling (including the disposal of) of chemicals, and of equipment.

### **Lab Safety Quiz**

The lab safety quiz must be completed in order to conduct an experiment in the lab. If the safety quiz is not completed before the first experiment, attendance in the lab is not permitted. You may attempt the quiz multiple times in order to achieve the required score of 100 percent.

### **Laboratory Risk Statement**

*Students enrolling in this course will be working with a variety of chemicals, some of which could be irritating or hazardous. Proper and accepted good laboratory practice will always be utilized to minimize or eliminate any adverse contact. However, individuals with sensitive medical conditions (including pregnancy) should take precautions such as wearing additional protective garments, delaying enrollment, or not enrolling in this course. Information about how to obtain Material Safety Data Sheets (MSDS) for chemicals used in this course is available in the chemistry department office, CP305. Please consult with your instructor and health care professional if you have any concerns.*

### **Personal Safety**

Chemistry is a discipline that requires an awareness and appreciation of safety issues. You must exercise care in the handling (including the disposal of) of chemicals, and of equipment.

1. Safety Goggles and Lab Coats are **MANDATORY**, and must be worn **AT ALL TIMES** in the laboratory. You need to purchase full coverage goggles, not glasses - Safety or hardened-glass spectacles are not an acceptable substitute, but may be worn under goggles.
2. You must wear appropriate clothing and footwear: Closed-toe shoes or sneakers are appropriate, open-toed sandals, flip-flops and the like are not. The legs must be covered at all times while in the lab.
3. Clothing/Skin Protection, in the form of appropriate attire and gloves, are encouraged. In any event, it is advisable that you not wear your "best" in the lab. Latex and/or nitrile gloves will be made available during the labs.
4. You should avoid contact with chemicals and solvents (including inhalation) as much as possible. Gloves should be available in the lab for handling of material. You should discard material in the waste containers provided, not wash them down the sink.
5. Inform yourself. Read all of the required reading material before coming to the lab. You should be aware that Material Safety Data Sheets (MSDS) of all materials used in the lab are available upon request.
6. Concentrate. It is important to stay focused in the lab, particularly toward the end of the period, when avoidable accidents may happen. Chemistry is one of those disciplines where a momentary lapse can cause harm.

### **Environmental Safety**

Be aware of what is going on around you, and take personal responsibility for your safety. **SAFETY IS EVERYONE'S RESPONSIBILITY**, not just the instructors.

### **Organic Chemistry Lab Rules**

- Students may only enter the stockroom with permission from the stockroom staff.
- Students may only take the amount of chemicals necessary to complete the lab and no more.
- Students may only take the necessary amount of acetone to clean glassware.
- **Never** use the same pipette on two different chemicals. Never cross contaminate chemicals. Lids must remain on chemical containers.
- Waste chemicals, and particularly organic compounds, should not simply be washed down the sink. Solid and liquid organic waste containers will be provided in the lab. Do not overfill waste containers.
- The broken glass containers are **only** for broken glass. No gloves, transfer pipettes, weight boats, etc.
- If glassware is broken in lab, ask stockroom for brush and pan and put broken glassware in the broken glass container.

- Clean up your own mess. If you make a mess, it is your responsibility to clean it up. This applies to your hood as well as the rest of the lab. This also includes things like putting the tops on bottles and jars (particularly those containing drying agents), as well as wiping up spills of liquids; or dribbles on the lips and sides of bottles. All chemicals must be disposed of properly. If the student does not know how to properly dispose of a chemical, he or she can ask their instructor or the stockroom staff.
- Inform the stockroom or instructor when waste jug is **almost** full or if acetone is needed.
- Lids must remain on chemicals that can be evaporated away.
- Students are responsible for returning any equipment borrowed during lab to the correct location after lab is completed.

## X. Student Support Services

### The Learning Center

The Learning Center offers free Tutoring and Academic Coaching for many courses at Ball State. Students can make appointments for online (Zoom) or in-person (NQ 350) appointments. To make an appointment, visit [myballstate.bsu.edu](http://myballstate.bsu.edu) and click on “Navigate” in the Academic Tools section, or just go directly to [bsu.navigate.eab.com](http://bsu.navigate.eab.com).

Testing accommodations for students with disabilities are available for students who have received the appropriate documentation from Disability Services. Tests may be administered in the Learning Center.

Supplemental Instruction is available in select courses. If you have an SI leader for your course, that person will provide students with information the first week of school regarding weekly study sessions. For more information about Learning Center programming, visit [bsu.edu/learningcenter](http://bsu.edu/learningcenter) or call 765-285-1006. Follow us on Instagram: [BallStateLC](https://www.instagram.com/BallStateLC).

### The Writing Center

All writers improve with practice and feedback, so as a student in this course, you are encouraged to use the Writing Center (in Robert Bell 295 during weekdays, Bracken Library First Floor West in the evenings, or online during any of our regularly scheduled hours) to get additional feedback on your writing.

The Writing Center offers free planning, feedback, and accountability sessions (in person and online) to all students composing essays, reports, reflections, research projects, web content, lesson plans, slideshows, poster presentations, resumes, and other digital or print texts. To schedule a free appointment to discuss your writing, go to [bsu.edu/writingcenter](http://bsu.edu/writingcenter). Online and in-person appointments are available; however, plan ahead because appointments book quickly!

### The Basic Needs Hub

If you are having difficulty affording enough food, do not have a safe and reliable place to sleep, and/or experiencing an emergency or crisis, help is available through the [Basic Needs Hub](#). The Basic Needs Hub has information, resources, and provides individualized support to students. To talk with a

supportive staff member about your experience, receive one on one assistance, or learn more about resources, you can submit a [Basic Needs Assistance Form](#).

### **The Counseling Center**

The Ball State University Counseling Center offers free and confidential services to all students. The Counseling Center is located in Lucina Hall, Room 320. To schedule an appointment, you can contact us at 765-285-1736. Ball State also offers a 24/7 Crisis Line, which can be reached at 765-285-HOPE (4673). The Crisis Line is a mental health resource for those who are struggling with any mental health concerns, including thoughts of self-harm and/or suicide.

At the Ball State Counseling Center, we see students for a variety of reasons, some of which include homesickness, relationship concerns, anxiety, and depression. At your first appointment, you will work with a therapist to create a plan that will connect you with resources that best fit your needs. We assist students with getting connected to therapy at our Center as well as connecting students to self-help resources, other on-campus resources, and community-based resources. All Ball State students also have access to several on-demand, self-help resources through a variety of different platforms. All of these resources, including a direct link to our website, can be found [here](#).

### **The Speaking Center**

The [Speaking Center](#) is a free resource available to all members of the BSU community wanting to improve their public speaking abilities. We offer personalized coaching designed to help you become a more confident and effective speaker. Our trained coaches provide constructive feedback and support throughout the entire speech preparation process, whether you are in the early stages of brainstorming ideas and organizing your thoughts, or you need to practice your delivery and refine your message.

The Center is in the David Letterman Communication and Media Building, room 302. To schedule an appointment, please access us through your Navigate app or use this [direct link](#) to sign up for a time. Appointments are available both in person and on Zoom. Appointments are available in person, on Zoom, and in virtual reality (VR) for those interested in practicing in an immersive speaking environment.

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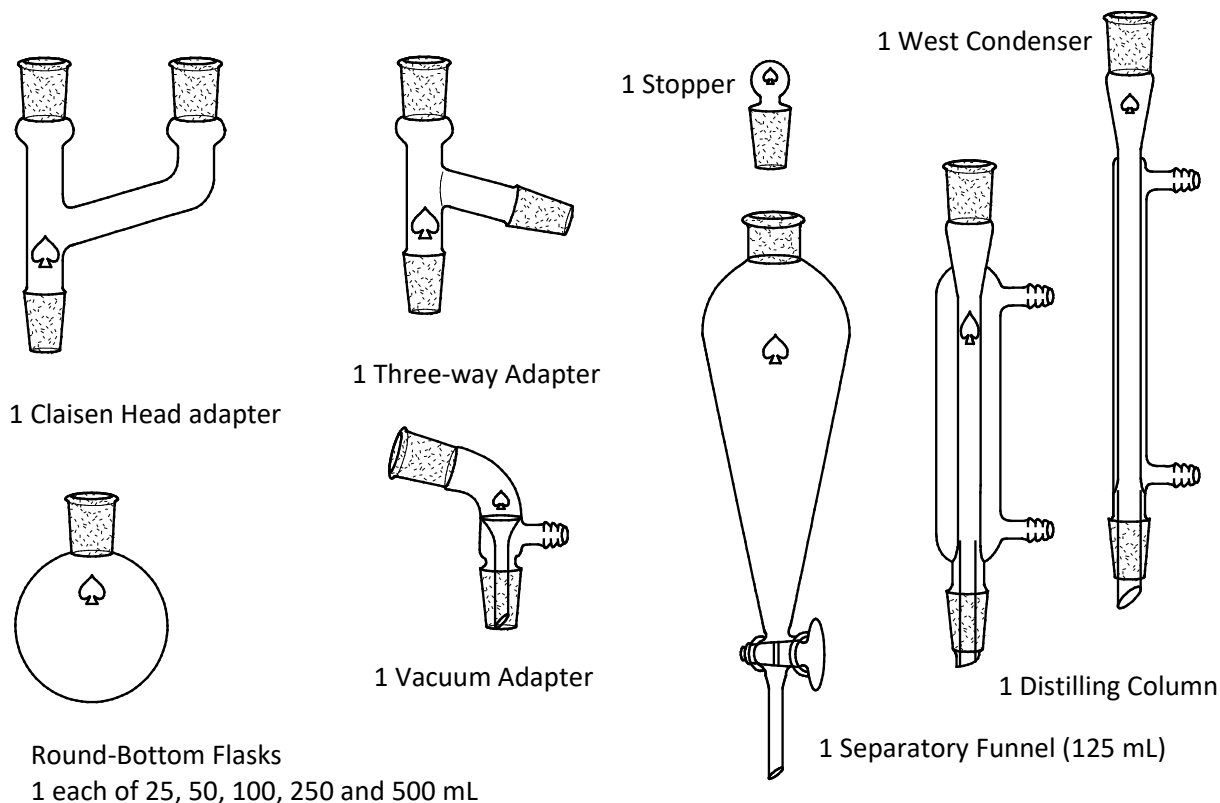
Ball State University aspires to be a university that attracts and retains a diverse faculty, staff and student body. We are committed to ensuring that all members of the campus community are welcome through our practice of valuing the various experiences and world views of those we serve. We promote a culture of respect and civil discourse as evident in our [Beneficence Pledge](#). For Bias Incident Response information, go to <http://cms.bsu.edu/campuslife/multiculturalcenter/bias-incident-reporting> or e-mail [mc2@bsu.edu](mailto:mc2@bsu.edu).

“The Learning Center offers free tutoring for many courses on campus, including science and humanities, modern languages, math and business, help with any writing task, and study strategies such as time management, test taking, note taking, and effective textbook reading. To make an appointment, call 765-285-3780 or Live Chat online at [www.bsu.edu/learningcenter](http://www.bsu.edu/learningcenter). We tutored over 16,000 sessions last year: there is no negative stigma to getting a tutor. We can help!”

#### **XI. CHEM 241L/234L Locker Equipment List**

- 1 Büchner funnel
- 1 Evaporating dish
- 1 Metal spatula
- 1 Glass stirring rod
- 2 Watch glasses
- 4 Beakers- 1 each of 50mL, 100mL, 250mL, 400mL
- 2 Graduated cylinders- 1 each of 10mL, 50mL
- 6 Erlenmeyer flasks- 2 each of 50mL, 125mL, 250mL
- 1 Glass liquid funnel
- 1 Plastic powder funnel
- 8 Test tubes- 3”
- 4 Test tubes- 6”
- 1 Thermometer- 200°C, alcohol
- 1 Standard taper glassware kit:

1 Thermometer adapter



## A Word on Writing Style

The style used most commonly for writing scientific reports and papers is a difficult one to master, because it is unlike the style we normally use to write or speak. The generally accepted format for writing scientific reports and papers is to use third person, past tense and passive voice. The rules of recent times have been relaxed a little to allow a greater degree of clarity and readability, but not greatly. Some examples:

*...I measured the melting range of compound X using a Thiele tube...* Unacceptable

*...The melting range of compound X was determined using a Thiele tube...* Acceptable

*...The melting ranges of compounds X, Y and Z were determined ...* Acceptable

*...We have measured the melting ranges of Compounds X, Y and Z...* Strictly Unacceptable. However, for reasons of clarity & readability, this would be allowed in the discussion/conclusion section of a report/paper with more than one author

*...I have measured the melting ranges of Compounds X, Y and Z...* Unacceptable

|   |   |
|---|---|
| ...The melting ranges of compounds X, Y and Z have been determined ...  | Acceptable in a discussion section, but <i>not</i> a results section.   |
| ...I added a solution of compound A in ether to a solution of compound B in ether, with vigorous stirring...            | Unacceptable  |
| ...Compound A was dissolved in ether, and a solution of compound B was added to this solution with vigorous stirring... | Acceptable  |
| ...A solution of compound B added to a solution of compound A...  | Unacceptable. Solutions do not spontaneously make or add themselves to other solutions.   |
| ...Compound A absorbs (or absorbed) at 267 nm...  | Note that in this case we can even use present tense. Despite everything, this actually <i>is</i> acceptable. We may write this type of sentence if we refer to an <i>intrinsic property</i> of a molecule. Dissolution is a process, not a property. It is important to distinguish these. |
| ...To a solution of compound A in ether was added a solution of compound B in ether with vigorous stirring...           | Despite the fact that this type of writing has proliferated in journal articles, it is unacceptable. This probably arose historically from German workers attempting to translate their work into English.  |
| ...A solution of compound B in ether was added to a solution of compound A in ether, with vigorous stirring...          | Acceptable  |
| ...Compound A was prepared by treatment of an ether solution of compound B with reagent C...                            | Acceptable  |
| ...Treatment of an ether solution of compound B with reagent C yielded compound A...                                    | Acceptable  |