

## BMB 370 – Introductory Biochemistry Lab

**Course format** Credit hours: 3  
Course modality: In person  
*Lecture:* Monday, 8:00–8:50 am, BPS room 1410  
*Laboratory:* Tuesday (section 001), Wednesday (section 002), and Thursday (section 003), 9:10–12:00 am, Biochemistry 113 and 117  
*Lab Lecture:* Friday, 12:40–1:30 pm BPS room 1410  
Attendance to lectures and lab is mandatory

**Course website address** <https://d2l.msu.edu/d2l/home/2146411>  
<https://d2l.msu.edu/d2l/home/2146417>  
<https://d2l.msu.edu/d2l/home/2146415>  
<https://d2l.msu.edu/d2l/home/2146413>

**Instructors** Dr. Sean Weise [weisesea@msu.edu](mailto:weisesea@msu.edu)  
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**Office hours:**

Dr. Weise	Mon – Thurs 1pm – 4pm, Biochemistry Rm 105B
Dr. Lundquist	
Dr. Vieille	

**Course Description:** BMB 370 provides an introduction to biochemical and molecular concepts, techniques, and data analysis tools commonly used in basic research and in industrial labs. Weekly lectures introduce students to the concepts and methods involved in the corresponding lab period. Weekly lab periods familiarize students with basic biochemistry techniques using experiments with proteins, and nucleic acids. These experiments and their analysis provide a foundation for all biochemistry students but particular to those who want to join research labs and apply for internships. Weekly recitations cover experimental learning outcomes, data analysis, and general Q&A.

**Required Course Materials and technology:**

- Students must supply protective eye wear (safety glasses)
- No shorts, sandals, or open-toed shoes are allowed in the laboratory
- Laptop computer and smart phone will be required in lab each week
- Because of the need for Microsoft Office apps as well as SnapGene Viewer software, a PC or Mac is required. Chromebooks will not work.
- Basic scientific calculator, the Texas Instruments TI-30Xa is recommended. A more complicated graphing calculator is often a hindrance
- Standalone (**not web browser-based**) Microsoft Office apps Excel, Word, and PowerPoint. Instructions for downloading these apps for free can be found here: <https://tech.msu.edu/technology/hardware-software/microsoft-licenses/#undergrad>

### **Grading Policies**

Class performance will be evaluated through weekly lab notebooks, weekly D2L homework, two in-class lab practical exams and one final written exam.

#### **Grades in BMB 370**

Notebooks	50%
Two practical exams	12.5% each
D2L homework	10%
Final written exam	15%
<b>Total</b>	<b>100%</b>

#### **Grading Scale**

<b>%</b>	<b>Grade</b>
≥ 89.50	4.0
≥ 84.50	3.5
≥ 79.50	3.0
≥ 74.50	2.5
≥ 69.50	2.0
≥ 64.50	1.5
≥ 59.50	1.0
< 59.50	0

Lecture, lab, and recitation are all mandatory. Attendance will be recorded. Three lab absences (excused or unexcused) will result in an automatic 0 for the course.

- Two points in each lab notebook grade are given for arriving to lab on time, having filled the required tables in the lab instructions ahead of time, and being ready to start the lab promptly at 9:10 am.
- Unless stated otherwise, lab notebooks are due at 8:30 am the day of a student's lab section. Submission at 8:35 am that day is considered one day late.
- The late penalty for notebooks is 10% of the points for the assignment per day (including weekends) up to a maximum of 50% off. There will be no extensions of lab notebook due dates. Lab notebooks turned in late due to last minute computer problems, unanticipated illness, or other life events will be graded as late. Do not leave lab notebook completion to the last minute.
- Except for excused absences, lab notebook grades will be decreased by 25% for arriving to the lab 1 hour late and by 50% for arriving 2 or more hours late.
- Lab notebooks for unexcused lab absences can be turned in for 50% credit using data from a lab partner or from Dr. Weise. It is the student's responsibility to contact Dr. Weise regarding absences and to request data.
- Lab notebooks for unexcused lab absences are still due at the original time. An additional 10% will be deducted for each day late.
- Late notebook submissions will not be graded if submitted later than one week after the deadline. The last two lab notebooks of the semester will not be accepted later than 8:30 am on the Tuesday of final exam week.
- There will be no extensions of homework due dates.
- Students must provide adequate documentation to the instructor preferably before, but no later than 48 hours after the absence for an absence to be excused. It is the student's responsibility to contact Dr. Weise regarding excusable absences. Absences will not be excused retroactively. Excusable absences include academic absences (e.g., conference attendance), attending a funeral, or illness. In the case of medical absences students are welcomed and encouraged to redact as much information from the "doctor's note" as they would like, that still conveys the evidence of illness during the time period that prevented attendance. Weddings and leisure/family travel do not constitute excusable absences.
- Make-up labs will be offered for excused absences only. All make-up labs must be completed within one week of the missed lab. A missed make-up lab will default to the unexcused absence policy of 50% credit using data provided by Dr. Weise and will be due at the original date with an additional 10% off for each day late.

- It is the responsibility of students with RCPD accommodation letters, to present these to the instructors during the first week of the semester, or as soon as the accommodation is granted (even if you do not intend to use the accommodation). RCPD accommodations will not be granted retroactively.

### **Challenging Grades**

From the time an assignment's grade is posted, students have **1 week to challenge their grade** by contacting Dr. Weise, **not the TA**. This is best done during Dr. Weise's office hours. Grading challenges will not be considered during class or lab time. Grading challenges will not be considered after 5 pm on the Friday of finals week regardless of when the grade was posted.

### **Strategies to succeed in the course**

- Attendance to lectures (Mon and Fri) and lab is mandatory. Attendance will be monitored. You will be expected to know everything mentioned during class or lab time. **Take notes.**
- If you miss a class or a lab, get notes from another student and contact Dr. Weise for data to submit a lab notebook. 50% credit is better than a 0.
- If you missed a lab that will be covered on the first or second lab practical, contact Dr. Weise to arrange a time to familiarize yourself with the lab protocol you missed.
- Complete the required tables and familiarize yourself with the protocol before coming to lab.
- Download and use the Lab Companion posted on D2L to help solve homework and lab problems. Understand what you are doing, do not blindly follow formulas.
- Do not rely on Chegg or other students' answers for homework. It defeats the learning process, does not prepare you for the exams, or for working in a research lab.
- Be an active participant in the lab. Do not let your lab partner do all the work. If you do, you will not be prepared for the practical and final exams.
- Read the homework feedback posted weekly on D2L to better learn how to set up calculations correctly.
- Use the lab notebook template posted on D2L and follow the directions in the lab instructions to complete your notebooks. Turn in lab notebooks on time.
- Lab notebooks should be submitted in **PDF format** to prevent formatting errors by D2L.
- After posting your lab notebook on D2L, double-check that you turned in the correct lab notebook, that all calculations, tables, graphs, figures, and conclusions are included, and that your document is formatted correctly. You can always resubmit the correct notebook.
- Read the weekly feedback on graded lab notebooks to understand what you did incorrectly so you can improve in your next submissions.
- **ASK QUESTIONS** during/immediately after lectures, during office hours, during appointments outside of office hours, during the lab periods, and during recitations.
- Be proactive and do not wait until after the second exam to seek help on how to improve your grade. We are here to help you. Make use of office hours.

While most lab work is done in pairs, students are expected to do their own work on lab notebook submissions. Duplicated lab notebooks, whole or in part, will result in a 0 for that lab notebook for all students involved. A second incidence will result in a 0 for the course and reporting to the university. Cheating on exams will result in a 0 for that exam and reporting to the university. Students are expected to develop original work for this course. (See also <http://www.msu.edu/unit/ombud/dishonestyFAQ.html>).

### **Honors option**

It is the responsibility of students interested in an honors option to contact Dr. Weise before the end of the third week of classes. Honors options will not be granted after the end of the third week of class. Honors projects must be completed and reports submitted before the Monday of the last week of class, not the Monday of finals week.

### **Student Integrity and Academic Honesty**

Article 2.3.3 of the Academic Freedom Report states that “The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards.” In addition, the BMB Department adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See Spartan Life: Student Handbook and Resource Guide and/or the MSU Web site: [www.msu.edu](http://www.msu.edu).)

### **Diversity, Equity, and Inclusion Policy**

Inclusion and diversity are core values of MSU, the College of Natural Science, and the Department of Biochemistry & Molecular Biology. Drs. Lundquist, Vieille, and Weise are committed to creating and maintaining an inclusive classroom in which students can work together in an atmosphere free from all forms of discrimination and harassment. Along with the expectations for coursework, we expect that we will all treat each other with respect and collegiality, and that we will be open to conversations and perspectives that challenge our own perspectives.

All people have the right to be addressed and referred to in accordance with their personal identity. Students should please let us know if they would like to use a name or pronouns different from those used for you by the University.

### **Mandatory Reporting Policy**

As professors, one of our responsibilities is to help create a safe learning environment for our students and for the campus as a whole. As members of the university community, we are required to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination. If a student has a need to report any such event(s), but would rather share information confidentially with an employee who does not have this reporting responsibility, a list of those individuals can be found here <https://caps.msu.edu/>.

### **Policy on religious observance**

It is the policy of MSU to permit students to observe holidays set aside by their chosen religious faith. If a student needs to be absent from class on a religious holiday, please make arrangements with instructors in advance.

### **Grief Policy**

Please read the Grief Absence Policy at <https://reg.msu.edu/ROInfo/Notices/GriefAbsence.aspx>. Instructors will do their best to provide students with a timeline for completing homeworks and group worksheets compatible with students' absence.

*Syllabus SS25 BMB 370 – Introductory Biochemistry Lab*

**Course Schedule**

<b>Day</b>	<b>Event</b>	<b>Person</b>	<b>Lab Notebook due at 8:30am Homework due at 11:59pm</b>
Mon Jan 13	Volumetric Devices Lecture	Dr. Weise	
Tues - Thurs	Volumetric Devices Lab	Dr. Weise	
Fri Jan 17	pH and pKa Lecture	Dr. Weise	Volumetric Devices Homework
Mon Jan 20	Martin Luther King Day	University Closed	
Tues-Thurs	pH and pKa Lab	Dr. Weise	Volumetric Devices Lab Notebook
Fri Jan 24	Second Lab Lecture	Dr. Weise	pH and pKa Homework
Mon Jan 27	Dilutions & Spec Intro Lecture	Dr. Weise	
Tues-Thurs	Dilutions and Spec Intro Lab	Dr. Weise	pH and pKa Lab Notebook
Fri Jan 31	Third Lab Lecture	Dr. Weise	Dilutions & Spec Intro Homework
Mon Feb 3	Protein Assay Lecture	Dr. Lundquist	
Tues-Thurs	Protein Assay Lab	Dr. Weise	Dilutions & Spec Intro Lab Notebook
Fri Feb 7	Fourth Lab Lecture	Dr. Weise	Protein Assay Homework
Mon Feb 10	No class		
Tues-Thurs	No class		Protein Assays Lab Notebook
Fri Feb 14	No class		
Mon Feb 17	Review for Exam 1	Dr. Weise	
Tues-Thurs	First practical exam	Dr. Weise	
Fri Feb 21	Review of exam	Dr. Weise	
Mon Feb 24	Enzyme Assay Lecture	Dr. Lundquist	
Tues-Thurs	Enzyme Assay Lab	Dr. Weise	
Fri Feb 28	Fifth Lab Lecture	Dr. Weise	Enzyme Assay Homework
Mon - Fri Mar 3 - 7 No class Spring Break			
Mon-Mar 10	Carbohydrate Assay Lecture	Dr. Weise	
Tues-Thurs	Carbohydrate Assay Lab	Dr. Weise	Enzyme Assay Lab Notebook
Fri Mar 14	Sixth Lab Lecture	Dr. Weise	Carbohydrate Assay Homework
Mon Mar 17	Review for Exam 2	Dr. Lundquist	
Tues-Thurs	Second Practical Exam	Dr. Weise	Carbohydrate Assays Lab Notebook
Fri Mar 21	review of exam	Dr. Weise	
Mon Mar 24	Protein Purification Lecture	Dr. Lundquist	
Tues-Thurs	Protein Purification Lab	Dr. Weise	
Fri Mar 28	Seventh Lab Lecture	Dr. Weise	Protein Purification Homework
Mon Mar 31	SDS-PAGE Lecture	Dr. Vieille	
Tues-Thurs	SDS-PAGE Lab	Dr. Weise	Protein Purification Lab Notebook
Fri Apr 4	Eighth Lab Lecture	Dr. Weise	SDS-PAGE Homework
Mon Apr 7	Plasmid Prep Lecture	Dr. Vieille	
Tues-Thurs	Plasmid Prep Lab	Dr. Weise	SDS-PAGE Lab Notebook
Fri Apr 11	Ninth Lab Lecture	Dr. Weise	Plasmid Prep Homework
Mon Apr 14	Restriction Enzyme Lecture	Dr. Vieille	
Tues-Thurs	Restriction Enzyme Lab	Dr. Weise	Plasmid Prep Lab Notebook
Fri Apr 18	Tenth Lab Lecture	Dr. Weise	Restriction Enzyme Homework
Mon Apr 21	PCR Lecture	Dr. Vieille	
Tues-Wed	PCR Lab	Dr. Weise	Restriction Enzymes
Fri Apr 25	Eleventh Lab Lecture	Dr. Weise	PCR Homework
Mon Apr 28	Final Exam 7:45am	Dr. Weise	
Tues Apr 29			PCR Notebook for all sections