College of Natural Science
MICHIGAN STATE UNIVERSITY

Department Biochemistry and Molecular Biology

BMB 200 Fall 2025 Tentative Syllabus

Course Number: BMB 200
Credit Hours: 4
Course meeting days and time: Tue/Th 8:00 – 9:50 am EDT
Course location: Biochemistry Building Room 101
Course website address: d2l.msu.edu
Course Modality: In person with zoom option for approved absences

Instructors

Instructor Information

Instructor/Course coordinator (she/her)	Instructor (she/her)
Name: Susanne Hoffmann-Benning	Name: Shannon Walsh
Office: BCH 223A	Office: BCH 419
Office hours: immediately after class during my teaching section and by email appointment	Office hours: immediately after class and by email appointment
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Teaching assistant
Name: Bahareh Ghaffari
Office: BMB 208
Office hours: Mon 11am –noon & 5-6 pm in 208 BCH; No office hours 9/22, 9/29, 10/20, 11/17
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Course Information

Course Description
In this course, you can learn how the food you eat lets you live. All food can be broken down into four major components, the same major components required for life. This class will systematically present the physical and chemical properties of these components, the role of each of these components in your body, and the processes by which your body utilizes these components.

Course Goals: When you successfully complete this course you will have a conceptual understanding of how the basic components found in the food you eat function in your body.

Course Objectives:

- Explain the roles water, chemical equilibrium, and pH play in your body.
- Recognize the chemical structure of the molecular building blocks found in the food you eat and identify the important chemical and physical properties of these building blocks.
- Describe how these molecular building blocks polymerize into larger molecules and organize into cellular structures.
- Compare and contrast the functions of these building blocks and their polymers in living cells.
- Explain how the chemical and physical properties of these building blocks cause them to carry out their specific functions in your body.
- Describe the basic cellular pathways used to break down the food you eat to produce the cellular building blocks and capture the energy your body needs.
- Discuss the relationship between coenzymes and vitamins and explain the roles of specific coenzymes in metabolism.
- Explain basic physical and chemical concepts that underlie cellular processes and apply these to problems involving your body's utilization of food.
- Explain how information is stored and passed on based on the chemical and physical properties of the molecules found in living cells.
- Explain how our understanding of biochemistry and molecular biology are changing the way society approaches food production and medical problems.

Recommended Texts & Other Materials:
Lectures will be based on the book "*Biochemistry*", by Mary Campbell and Shawn Farrell, Brooks/Cole publishing. The book is not required but highly recommended. Older versions back to 6th edition are acceptable in print or as e-text. Electronic text purchase link:
http://www.cengagebrain.com/shop/search/9781285429106

We have four extra copies of the 8th edition that we are willing to loan out to the first four students. These books will need to be returned before the final exam period. If you borrow the book, your grade will be entered after its return.

Prerequisite: General chemistry and organic chemistry.

Other required materials: i>clicker2 remote or device with the iClicker Cloud app.
MSU has an institution-wide license that makes it free to use the app. If you already have an iCLicker 2, you can use that as well. See set up instructions on D2L to decide which option is best for you and to set up your device before the first class.

Course platforms/Structure:
Lectures are from 8:00 A.M. to 9:50 A.M. EDT on Tuesdays and Thursdays in Biochemistry room 101. Attendance at lecture is expected and contributes to your grade in the form of clicker points.

Desire2Learn (D2L): For course information, lecture notes, grades, and announcements, go to d2l.msu.edu and sign in with your MSU NetID and password. Double click on the course name to enter the course. Course e-mail will also be sent through D2L. If you encounter trouble with D2L, please contact the D2L helpdesk. Make sure your D2L is forwarded to the email address you monitor most frequently. We are not responsible for missed emails.

Technical Assistance:
If you need technical assistance at any time during the course or to report a problem you can:

- Visit the MSU Help site at http://help.msu.edu
- Visit the Desire2Learn Help Site at http://help.d2l.msu.edu
- Call the MSU IT Service Desk at (517)432-6200, (844)678-6200, or e-mail at ithelp@msu.edu
- Request assistance navigating and requesting instructional design help: https://tech.msu.edu/service-catalog/teaching/instructional-design-development/
- Email your instructors/TA – we may be able to help.

Course Outline/Schedule/Grading

Grading: Final grades will be based on the assessments shown below:

Quizzes/Homework*	20%	(best 4 of 6 quizzes/homework – drop the two lowest scores)
"Clicker" Points*	8%	(each day counts equally; drop your lowest 4 clicker days)
Exams	72%	(4 exams at 18% each)

* This is an in-person class. Students attending class remotely due to sickness or other approved reasons, will only be able to participate in 4 of the quizzes online. The other two will be exclusively in person. Similarly, students attending class remotely due to sickness or other approved reasons, will need to enter the clicker answers in zoom for up to 90% of the maximal points. Exams are in person.

The course grades will be rounded to the nearest tenth and determined based on the scale shown below.

Percentage	Grade	Percentage	Grade
90.0% or above	4.0	< 68% to 60.0%	2.0
< 90% to 83.0	3.5	< 60 % to 55.0%	1.5
< 83% to 75.0%	3.0	< 55% to 50.0%	1.0
< 75% to 68.0%	2.5	< 50%	0.0

Assessments:
Quizzes/Homework: There are a total of six assignments: two unannounced "mini-exam" quizzes, two classroom group quizzes, and two homework assignments. The short (5-10 question ~ 10 minute) individual and group quizzes are designed to acquaint you with the style of examination questions you may be asked on an upcoming exam. Your two lowest scores from these will be dropped and the remaining scores will count as 20% of your grade. This is equivalent to more than one exam, so it is your opportunity to solidify a good grade or balance a bad exam grade. There will be no make-up quizzes. If, on the day of a quiz, you are not in class for any reason, this is one of the scores that will be dropped. If you miss more than two quizzes for any reason, the additional missed quizzes will count as zeros.

"Clickers": This course will use the i>clicker classroom response system. You will receive 2/3 of a point for sending in any answer and an additional 1/3 point for sending in the correct answer for each question posed during class. The lowest 4 clicker day scores will be dropped from your overall course grade. "Clicker" points will make up 8% of your grade. It is your responsibility to bring your clicker to class each day. There are no make-up opportunities for missed clicker points. If you miss class for any

reason, you will receive no points for that day. Because we drop multiple days of clicker scores, you can miss several days of class and still get full credit. Any student found using another student's clicker will be considered cheating and in violation of the Academic Honesty policy listed below.

Exams: On Sept. 17, Oct. 14, and Nov. 11 during normal class time there will be midterm exams. Exams will not be followed by lecture on those days. The final exam will be on Tuesday, December 9, starting at 7:45 A.M. covering material taught after exam III. The exams will count as 72% your grade (18% for each exam). Exams will consist of a variety of question types, including multiple choice, true/false and essay-style questions.

No collaborations/discussions allowed during exams. Any detection of plagiarism will result in a "zero grade" for all involved parties.

If you miss an exam and provide an excuse according to MSU exam policy (grief, military, religious), we will provide one make-up exam option for the semester. Absence must be documented in writing and, if possible, in advance. Medical excuses will be accepted up to 3 days after the missed class period. Other excuses must be authorized in advance by the instructor. You will need to be prepared to document your illness or the extenuating circumstances that caused you to miss the exam. If you are unsure, contact us and ask.

Academic Honesty: The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards. Academic honesty as described in the Spartan Life Handbook (see in particular: Protection of Scholarship and Grades and Integrity of Scholarship and Grades) is expected. For the written homework assignment, you can discuss your work with friends, however, the writing must be in in your own words. Quotes from the text will not count as your own words and will not be counted as answer to the questions. More than 35% identity to other homework assignments, the original text, or other publications will be considered plagiarism and will result in a "0" and a report to the Dean's office. If you are unsure, use cross check or ask your instructors.
Use of AI (ChatGPT etc) for assignments should be avoided as it defeats the purpose of you using your new biochemistry skills to read, analyze and summarize a paper. At best, it can only be considered a starting point. This is a biochemistry class, hence your answers need to be in-depth as far as biochemical methods and connections to class are concerned. We will run our questions through ChatGPT and compare your answers to theirs. More than 35% identity will lead to markdowns. I will show an example on the first day of class.

Students with Disability Requests: Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a verified individual services accommodation ("VISA" or "Accommodation") form. Please present this form to Dr. Hoffmann-Benning at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date will be honored as possible but cannot be guaranteed.

BMB Community Standards
The BMB Community standards of appropriate behavior are posted under general information on D2L.

Health or Grief Absence
While occasional absences are built into the grading scheme, more severe/extended absences may occur. In case of the death of a family member or close friend, you can contact us. But, please also make sure to file for a grief absence through MSU. They will communicate your absence to ALL your instructors. https://reg.msu.edu/roinfo/notices/griefabsence.aspx

The first 10 students to send me an email naming their favorite animal prior to Monday, August 25, 8 pm will receive a coupon for a free scoop of ice cream at the MSU dairy store.

Lecture Schedule BMB 200-Fall 2025

Date	Day	Lec. #	Topic	Instructor	Reading
8/26	Tu	1 & 2	Are you what you eat? - An overview of biochemistry. Cell composition and compartmentalization; cells; water	SHB	Chapter 1
8/28	Th	3 & 4	Acid/base/pH; buffers; amino acids; peptides	SHB	Chapter 2 &3
9/2	Tu	5 & 6	Peptides, proteins;Three-dimensional structure of proteins	SHB	Chapter 3&4
9/4	Th	7 & 8	Protein function; Folding and disease;	SHB	Chapter 6
9/9	Tu	9 &10	The behavior of proteins: Enzymes	SHB	Chapter 7
9/11	Th	11 & 12	Enzymes: Mechanisms, Control	SHB	Chapter 7
9/16	Tu		**Exam I - Lectures 2 - 12**	SHB	
9/18	Th	13 &14	Lipids and membranes	SHB	Chapter 8
9/23	Tu	15 & 16	Membranes; Action potentials and neurotransmitters	SHB	Chapter 8
9/25	Th	17 & 18	Nucleic Acid Structure	BG	Chapter 9
9/30	Tu	19 & 20	DNA Replication and DNA Repair Replication, Mutation and Evolution	SHB	Chapter 10
10/2	Th	21 & 22	RNA Transcription and Control	SHB	Chapter 11
10/7	Tu	23 & 24	Protein Synthesis	SHB	Chapter 12
10/9	Th	25 &26	Methods in Biotechnology. The good, the bad, and the evil: are GMOs our friend or foe?	SHB	Chapter 13
10/14	Tu		**Exam II - Lectures 13 - 26**	SHB	
10/16	Th	27 & 28	Sugars and carbohydrates	SW	Chapter 16
10/20-21	Tu		**Break Day!**		
10/23	Th	29 & 30	Basics of metabolism and thermodynamics	SW	Chapter 15
10/28	Tu	31 & 32	Glycolysis	SW	Chapter 17
10/30	Th	33 & 34	Glycolysis and fermentation	SW	Chapter 17
11/4	Tu	35 & 36	Storing and using carbohydrates	SW	Chapter 18
11/6	Th	37 & 38	Other carbohydrate pathways	SW	Chapter 18
11/11	Tu		**Exam III - Lectures 27-38**	SW	
11/13	Th	39 & 40	Pyruvate oxidation and citric acid cycle	SW	Chapter 19
11/18	Tu	41 & 42	Citric acid cycle	SW	Chapter 19
11/20	Th	43 & 44	Oxidative phosphorylation	SW	Chapter 20
11/25	Tu	45 & 46	Metabolism of fats	SW	Chapter 21
11/27	Th		**Thanksgiving!**		
12/2	Tu	47 & 48	Photosynthesis	SW	Chapter 22
12/4	Th	49 & 50	Amino acids and nucleotides	SW	Chapter 23
12/9	Tu	7:45 – 9:45	**Exam IV– Lectures 39-48 Tentative. Pending MSU confirmation**	SW	