



CHM4413L: Biophysical Chemistry Laboratory Summer 2025 | 2.00 credits

Instructors:

Dr. Namodhi Wijerathne

Office: CLB 314

Office Hours: Tuesday 10.00 AM-12.00 PM
& by appointment

Dr. Xueying Zhao

Office: LEI 232

Teaching Assistants:

Course Website

All course-relevant activities will be performed through Canvas.

Course Texts and Manuals

All course materials will be available through the Canvas site. There are no required textbooks. The schedule of experiments, quizzes, and reports is all contained within the Canvas website.

Communication

All electronic communication should be conducted through the Canvas e-learning site.

Instructors and TAs are generally available via Canvas messaging and will make every attempt to respond in 24 hours during normal working days. However, if you wait until the last minute to contact us regarding questions for an assignment, we may not get back to you before the assignment due date.

Meeting days and times:

Lecture:

Tuesday (2.00 PM-3.15 PM)
LEI 0242

Students of all sections will meet once a week to discuss background information, discussion, and lab work for the following week. Attendance and participation are EXPECTED. Occasionally,

SUMMER SEMESTER 2025							
	S	M	T	W	T	F	S
May	4	5	6	7	8	9	10
		-- Drop/Add --				Registration	
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	Holiday 26	27	28	29	30	31
June	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	Holiday 19	20	21
	22	Grades Due 23	Deg. Cert. 24	25	Summer Break 26	Registration 27	28
	29	Drop/Add 30					
July		Drop/Add		1	2	3	Holiday 4
	5						
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
Aug.	27	28	29	30	31		
						1	2
						Commencement	
	3	4	5	6	7	8	9
	10	Grades Due 11	Deg. Cert. 12	13	14	15	16

the lecture will be online or in another location (library session). These changes will be posted in announcements. Please check your announcements regularly.

Lab Sessions:

Wednesday or Thursday: (12.30 PM- 6.15 PM)
SIS A221

Each section is assigned a specific afternoon meeting time. Some data analysis and database activities will be held in a more traditional classroom or through Zoom. Locations and links will be posted in announcements, so please set up your Canvas account to automatically notify you of announcements. Please be prepared for all lab sessions. Contact your instructors at least one week in advance if any potential absences are anticipated. Please show up on time for your lab. Lateness will be reflected in your notebook grade. All students are required to come to the lab prepared, with the pre-lab component of the lab notebook completed.

Course Description

This one-semester laboratory course emphasizes core experimental and analytical methods in biophysical chemistry. Students will investigate the physical foundations underlying the structure, behavior, and interactions of biologically significant molecules, with an emphasis on applications relevant to pre-professional tracks. The curriculum integrates hands-on laboratory work with theoretical concepts and computational modeling to highlight the physical basis of biochemical phenomena. Students will engage in rigorous quantitative data analysis, apply chemical and biophysical concepts, and interpret experimental results using appropriate physical models. The course places a strong emphasis on laboratory safety and fosters scientific communication through the assignments. By the end of the semester, students will gain proficiency in essential biophysical laboratory techniques and develop the analytical and critical thinking skills characteristic of advanced undergraduate chemistry training.

Prerequisites

Prereq: CHM 2211L and CHM 3120L; Coreq: CHM 3400.

Course Objectives

In this course, we will:

- Emphasis on laboratory safety awareness: understand chemical and biological hazards in the lab and adhere to all safety protocols, including the proper use of personal protective equipment.
- Integrate concepts of physical chemistry with biochemistry: build on the foundation of chemistry concepts in the context of biophysical chemistry.

- Quantify biomolecular interactions: quantitative analysis of biochemical systems, using both experiments and theoretical simulations.
- Quantitative data analysis: Utilize statistical methods to fit experimental data and develop an understanding of reproducibility in the context of scientific measurements.
- Data interpretation through theory and applications: Utilize physical models and theory to obtain meaningful insights from the analysis of experimental data.
- Scientific communication: present experimental results through written scientific laboratory reports.
- Current biophysical research and applications: relate course experiences to modern biophysical research

Student Learning Outcomes

A student who successfully completes this course will be able to:

- Understand and practice laboratory safety
- Apply fundamental physical chemistry concepts in a biochemical context
- Collect and analyze quantitative data and interpret using theoretical models
- Apply the biophysical chemistry concepts to real-world applications

Graded Work

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the [Catalog](#).

Graded Components

Lab notebook (15%): The students will maintain a well-organized lab notebook, which will be graded before and after every lab session. TAs will check and assign an appropriate grade to the notebooks,.

Assignments (60%): The scientific reporting skills will be improved through a properly structured lab notebook. Students will write a lab report for each module. Other Assignments will also be assigned to students in the forms of quizzes.

Quizzes (15%): Quizzes will be used to assess the understanding of the course materials each week, and to prepare the student for the upcoming lab session.

Final presentation (10%): Students will engage in a final oral presentation (in small groups) focusing on an application of biophysical chemistry concepts relevant to their future career.

TOTAL: 100%

Grading Scale

Letter Grade	Number Grade
A	100-94
A-	93.9-88
B+	87.9-80

Letter Grade	Number Grade
B	79.9-75
B-	74.9-70
C+	69.9-65
C	64.9-60
C-	59.9-55
D+	54.9-50
D	49.9-45
D-	44.0-40
E	39.9-0

See the UF Catalog's "[Grades and Grading Policies](#)" for information on how UF assigns grade points.

Calendar

Week of	Topic
05/13/2025	Laboratory Safety
05/20/2025	Statistical data analysis
05/27/2025	Protein Structure
06/03/2025	Uninhibited enzyme kinetics
06/13/2025	Inhibited enzyme kinetics
06/17/2023	Library session
06/24/2025	Spring Break
07/01/2025	Conjugated dye wet lab
07/08/2025	Conjugated dye dry lab
07/15/2025	NMR
07/22/2025	Critical micelle concentration: conductivity
07/29/2025	Critical micelle concentration: fluorescence
08/05/2025	Final presentations

University Policies and Resources

Attendance policy

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Students requiring accommodation

Students who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting

<https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

UF course evaluation process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals
2. Their Canvas course menu under GatorEvals
3. The central portal at <https://my-ufl.bluera.com>

Guidance on how to provide constructive feedback is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

University Honesty Policy

University of Florida students are bound by the Honor Pledge. On all work submitted for credit by a student, the following pledge is required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Student Honor Code and Conduct Code (Regulation 4.040) specifies a number of behaviors that are in violation of this code, as well as the process for reported allegations and sanctions that may be implemented. All potential violations of the code will be reported to Student Conduct and Conflict Resolution. If a student is found responsible for an Honor Code violation in this course, the instructor will enter a Grade Adjustment sanction which may be up to or including failure of the course. For additional information, see <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>.

In-class recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party-note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Procedure for conflict resolution

Any classroom issues, disagreements or grade disputes should be discussed first between the instructor and the student. If the problem cannot be resolved, please contact namodhi wijerathne (namodhiw@gmail.com, [3538710648](tel:3538710648)). Be prepared to provide documentation of the

problem, as well as all graded materials for the semester. Issues that cannot be resolved departmentally will be referred to the University Ombuds Office (<http://www.ombuds.ufl.edu>; 352-392-1308) or the Dean of Students Office (<http://www.dso.ufl.edu>; 352-392-1261).

Resources available to students

Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).
- University Police Department: Visit [UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the [UF Health Emergency Room and Trauma Center website](#).
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273-4450.

Academic Resources

- E-learning technical support: Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- [Career Connections Center](#): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- [Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources. Call 866-281-6309 or email ask@ufl.libanswers.com for more information.
- [Teaching Center](#): 1317 Turlington Hall, Call 352-392-2010, or to make a private appointment: 352-392-6420. Email contact: teaching-center@ufl.edu. General study skills and tutoring.
- [Writing Studio](#): Daytime (9:30am-3:30pm): 2215 Turlington Hall, 352-846-1138 | Evening (5:00pm-7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers.
- Academic Complaints: Office of the Ombuds; [Visit the Complaint Portal webpage for more information](#).
- Enrollment Management Complaints (Registrar, Financial Aid, Admissions): [View the Student Complaint Procedure webpage for more information](#).