Spring 2025/Chem 37800
Hunter College, Dept. of Chemistry
Biochemistry Laboratory

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Recitation Lecturer: Prof. Frida Kleiman
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Wikipedia class coordinator: Iris Finkel, ifinkel@hunter.cuny.edu

Recitation: **In person on Monday 8:30-9:20, room HN 1527. With some Asynchronous activities.**
Lab: **In person, Tuesdays-Fridays, Room 1413 HN; 5 hr/week. With some Asynchronous activities. Check the weekly schedule and be alert for notifications from the Professor.**

Lab Manual: Ninfa, Ballou, Benore (ISBN 13 978-0470087664; ISBN-10: 0470087668). Fundamental Approaches to Biochemistry and Biotechnology, **1st or 2nd edition 1998 or 2010**. Fitzgerald Science Press, Bethesda, MD.
Background reading (optional): Garrett and Grisham (ISBN 0-534-49033-6), BIOCHEMISTRY, 5th edition, 2013. Brooks/Cole.R.H.

-YOU WILL NOT BE ABLE TO TAKE THE CLASS WITHOUT THE FOLLOWING PREREQ: ENGL 12000 and CHEM 22500 with grade of C or better. Pre-Req or Co-Req: CHEM 37700 or CHEM 64100.

The 3 quizzes will be offered in person Room 1527 from 8:30 to 9:20.

-Attendance to laboratories is Mandatory!
-Attendance to recitations is a requirement for the course and it will be used as part of the grade.
-No changes in recitations/laboratory hours will be allowed.

-Stay alert to Brightspace announcements. That will be the primary source of communication.
-You HAVE to wear goggles all the time in the lab. We will not provide them, so you will have to be prepared.
--Check vaccination requirements to attend the class.

Learning Outcomes: By the end of this course, students will be able to:
1. Explain basic biochemical and molecular biological concepts and principles
2. Appreciate the different levels of biological organization, from molecules to organisms
3. Implement concepts of chemistry, physics, mathematics, informatics and scientific information communication into Molecular Biology.
4. Explain the importance of the scientific method to understanding natural phenomena.

5. Effectively communicate scientific data and ideas to a liberal arts audience both orally and in writing.
6. Critically evaluate experimental data and primary papers, develop a hypothesis, and design experiments to address an interesting and novel problem.

Quizzes: Three quizzes will be given in person.
Quizzes cover the following:
a) background material covered or assigned by the Recitation instructor, and b) the corresponding laboratory experiments performed prior to the quiz. The dates of the quizzes and the chapters covered are indicated in the WEEKLY SCHEDULE OF EXPERIMENTS. Makeup is possible only under extraordinary circumstances, with the permission of Professor Kleiman. Schedule of Quizzes: During recitation class, approx. 30 min.

Format of quiz: Very similar to the problems and examples on the pages suggested being prepared in advance from the lab manual. The web page link gives solutions to the problems given in the lab manual. Work through all problems and examples before the quiz! Material is not new to you; it was covered in General Chemistry and Biochemistry 1. 1bring always a calculator.

Recitation Lecture: 1 hr/week, presented by Prof Kleiman. The primary purpose of recitation is to explain the background material for the experiments, based on the appropriate chapters in Ninfa and Ballou. In addition, important instructions and modifications for the oncoming experiment, which are not in the book, are frequently included in the recitation lecture. **Attendance is REQUIRED and is taken at each recitation class. Each unexcused absence might result in loss of points from the overall lab grade.** Please take notes of Recitation in a dedicated notebook.

Laboratory Safety: You are required to read thoroughly Chapter 2, Sec 1 before the first laboratory session. You will be asked to sign a statement saying you have read this information. You should bring your own goggles.

Advance preparation for the lab: Before you come to the lab you are expected to know which experiment you are going to perform that day, and to have a written flow-chart of what to do, step by step. Students should keep these notes in a dedicated notebook. The TA will check this material at the beginning of each session. The background material should have been studied also. The lack of preparation will result in loss of points from the overall lab grade. The WEEKLY SCHEDULE indicates the pages in Ninfa and Ballou assigned for advance preparation for each chapter.

Attendance at the lab is mandatory. Students may miss a lab once for a legitimate reason (**proof required**). A makeup must be scheduled at the **same week** of the missed laboratory. The TA's of the missed and of the make up labs and Professor Kleiman should be notified in advance. **Punctuality is mandatory**, students should enter the lab on time. The students are not supposed to leave the lab before the 4 hours are over.

Grading: The grade in this course will be determined by the following:
1. A written lab report on the chapters indicated in the WEEKLY SCHEDULE OF EXPERIMENTS. Lab reports are due in the week indicated in the WEEKLY SCHEDULE OF EXPERIMENTS. **The 10-15 page report must be original and formatted in a journal style; each student should present its own interpretation of the results. Any plagiarism will be dealt according to Hunter College policy (see below). The lab report must be typed and submitted online to your TA. In addition to scientific accuracy, the TAs will give constructive feedback on the reports in terms of writing, style, and syntax. The lab report must be typed and submitted through Blackboard, as each lab report will be checked for plagiarism with SafeAssign.**

2. The scores of the three quizzes.
3. On-site observation of the student's performance in the laboratory. Evidence for lack of preparation and of advance planning of the experiment is a negative factor.
4. Publication of a scientific communication in Wikipedia.

The total score of the three quizzes constitutes 45% of the overall grade while the lab reports constitute 45%. Results of "on-site observation" may detract up (not add up) to 5% of your total score. Publication of a scientific communication in Wikipedia constitutes 10%. The exams will be graded in the percentage scale and reported in the letter grade following Hunter College grading system.

Laboratory Notebook: It is required that you use a bound (as opposed to loose leaf binder) laboratory notebook and use it exactly as described in the lab manual, Chapter 1 Sec 5. The notebook should contain notes of your plan written before you come to the lab. The notebook should be available for the lab instructor upon request during the lab session.

Cleanup: Students should leave their bench in order for the next lab session. Students should wash glassware they used.

Hunter College required statements for syllabi

1. Academic Integrity Statement: "Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures."
2. ADA Statement: "In compliance with the ADA and with Section 504 of the Rehabilitation Act, Hunter College is committed to ensuring educational access and accommodations for all its registered students. Hunter College's students with disabilities and medical conditions are encouraged to register with the Office of AccessABILITY for assistance and accommodation. For information and appointment contact the Office of AccessABILITY located in Room E1214 or call (212) 772-4857 /or VRS (646) 755-3129."
3. Hunter College Policy on Sexual Misconduct "In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.
    a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).
    b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf"

Biochemistry Laboratory (Spring 2025)
Chem 378
Weekly Schedule of Experiments

Week	Recitation	Lab Date	Chapter; experiment	Quizzes	Lab report due
1	1/27	1/28, 1/30-31 Wed class 2/5	Ch.3: Spectrophotometry; 3-1, 3-2, 3-3, 3-4		
2-3	2/3 2/10	2/4, 2/6-7 Wed class 2/19 2/11, 2/13-14 Wed class 2/26	Ch.4: Quantification of protein concentration; 4-1 (Bradford). Ch.5: Size Exclusion Chromatography; 5-1. Ch.6: Gel electrophoresis of proteins; 6-1		
4-7	2/18 (Mon schedule) 2/24 **3/3** 3/10	2/25, 2/27-28 Wed class 3/6 3/11-14 3/18-21 3/25-28	Ch. 9: Isolation and characterization of the enzyme alkaline phosphatase from *E. coli*; 9-1.	**3/3 Quiz 1 (Ch. 3-6)**	Report 1 (Ch. 3-6) at week 7.
8	3/17	4/1-4	Ch. 10: Enzyme kinetics: K_m and V_{max}; 10-1.		
9	**3/24**	**3/24 Wikipedia class**		5/5 final day to edit Wikipedia Assignment	
10	4/7	4/8-11	Ch. 14: Polymerase Chain Reaction (PCR). Agarose gel electrophoresis.		
	4/14-18	Spring break	Spring break		
11-12	4/21	4/22-25	Recombinant DNA techniques: ligation/restriction enzymes.		
13	**4/28**	**4/28 Quiz 2** (Ch. 9-10)		**4/28 Quiz 2** (Ch. 9-10)	Report 2 (Ch. 9-10) at week 12
14	5/5	5/6-9	Ch. 13: Transformation.		
15	**5/12 Quiz 3** (Ch. 13-14, PCR)	**5/12 Quiz 3** (Ch. 13-14, PCR)		**5/12 Quiz 3** (Ch. 13-14, PCR)	
16	5/12-16	REPORT 5/12-16			Report 3 (Ch. 13-14, PCR) at week 17

***Wikipedia Editing class offered by Professor Iris Finkel.**