

BIO 346L: BIOCHEMISTRY**Instructor:** Noelle J. Relles**Lab:** SCCT 2091**Email:** nrelles@hamilton.edu**Office:** SCCT 2067**Office Hours:** Tuesdays 10:30am-12pm**Phone:** x4855

Wednesdays 11:30am-12:30pm

Required: Lab notebook (provided)**Course Objectives**

- Students will enhance their understanding of biochemical principles using the scientific process and common laboratory techniques.
- Students will master the use of common laboratory equipment and techniques used in biochemistry and molecular biology.
- Students will be able to conduct research using library resources and reference software.
- Students will be able to efficiently read and understand scientific literature.
- Students will be able to succinctly report their findings in the style of current scientific literature.

Grading Breakdown

Biochemistry lab accounts for 1/3 of your biochemistry grade. Your lab grade will be based on your regular participation in lab, keeping a lab notebook, reading scientific papers related to the lab and completing assignments relevant to lab, as well as a semester's long lab report.

Attendance and Late Submissions

Attendance is required for all lab sessions indicated on the lab schedule. Keeping a lab notebook is imperative for this course. If there are extenuating circumstances for tardiness or absence please give me at least 24 hours' notice when possible. For planned events that interfere with labs, please contact me at least 1 week in advance in order to make accommodations.

Accommodating Persons with Disabilities

- Hamilton College will make reasonable accommodations for students with properly documented disabilities. If you are eligible to receive an accommodation(s) and would like to make a formal request for this course, please discuss it with me as soon as possible. You will need to provide Allen Harrison, Assistant Dean for Accessibility Resources (aharriso@hamilton.edu) with appropriate documentation of your disability.

Electronic Communications

You are responsible for checking Blackboard and your email regarding course information. You are responsible for all material posted online (including via email) as of 24 hours after posting time.

Academic Integrity

Please refer to the student honor code. Academic dishonesty will not be tolerated.

AI is a growing technology that has the potential to be a helpful assistant for studying and editing but can also cause issues with plagiarism and can return misleading or incorrect content depending on the prompt given. I caution you to rely too heavily on AI for help if you are still learning how to properly input prompts and check the results. I consider work generated using AI and submitted as your own to be plagiarism and it will be treated as such.

Schedule: Subject to change.

Week of:	Topic-Objectives	Notes
9/1	Introductions and Lab Safety; Pipetting practice and serial dilutions	
9/8	Module 1: Serial dilutions and creating a standard curve; peer review and using library resources to look up scientific papers	Pre-lab reading on what a standard curve is and why we use them; make sure you have a Refworks account
9/15	Module 1: Enzyme kinetics of α -amylase	Pre-lab reading on enzyme kinetics of α -amylase -plotted standard curve due on Blackboard -Write out protocol in lab notebook before coming to lab
9/22	Module 1: pH optimization of α -amylase	-Find a paper on pH of α -amylase and make predictions -Michaelis-Menten and Lineweaver Burk plots due
9/29	Module 1: variable incubation time or inhibition	Michaelis-Menten and Lineweaver Burk plots due
10/6	Module 1: Re-run experiments as needed! Module 2: Transformation of <i>E. coli</i> w/ pGLO	Michaelis-Menten and Lineweaver Burk plots due
10/13	FALL BREAK: No labs	*Hand in completed methods and results section before you leave for break
10/20	Module 2: Inoculation of transformed <i>E. coli</i>	*Amylase intro draft due by Friday 10/24*
10/27	Module 2: Cell lysis, bacterial concentration and protein chromatography	*Amylase discussion draft due by Friday 10/31*
11/3	Module 2: Gel electrophoresis (long lab)	Peer review of discussion due Friday 11/7
11/10	Module 2: Gel and Protein transfer (long lab and need to come in next day for 1 hour incubation and visualization of results)	

11/17	Module 3: Tetrahymena growth experiments	Read background info on Tetrahymena; -Final amylase paper due by Friday 11/21
11/24	Thanksgiving break: No labs	
12/1	Module 3: Tetrahymena alternative carbon sources	Module 2 results due in lab
12/8	Buffer week	Tetrahymena results and discussion due in lab