

ADVANCED BIOCHEMISTRY LABORATORY

PLNU Mission: Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Welcome to CHE/BIO 4050L, Fall 2024:

Chemistry/Biology 4050L is an upper division laboratory course cross-listed from the Departments of Chemistry and Biology. This 1 unit course is meant to run concurrently with CHE/BIO4050 lecture and is designed to provide practical applications to understand the fundamental principles of the chemistry involved in biological processes.

INSTRUCTORS

Ariane Jansma, Ph.D. (Section 3 and Lab Coordinator)

Voice Mail: 619-849-2623

Email: ajansma@pointloma.edu

Emily Schmidt, Ph.D. (Sections 1 and 2)

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LAB SCHEDULE

Lab Section 1: W	2:45 pm – 5:45 pm	ST 221
Lab Section 2: W	6:30 pm – 9:30 pm	ST 221
Lab Section 3: R	8:00 am – 11:00 am	ST 221

OFFICE HOURS

Office hours are held in the **Rohr Science, 3rd floor conference room (Access through the Office Suite, Room 330)** - [Click for a Map of Main PLNU Campus](#)

Tues: 9:30* am – 11:00 am and 12:30 pm – 2:00 pm

Thurs: 12:30 pm – 2:00 pm

*NOTE: I teach at the PA School from 8:00 - 9:00 am on Tuesday mornings so this start time might need to be flexible if my students have questions after class or if I need to swing through the Starbucks drive-thru on my way to main campus or if I can't find a place to park. Otherwise, I should be available by 9:30.

I have additional times available to meet individually, so please send me an email if you would like to set up an appointment.

LEARNING MATERIALS

- **Computer:** We will be using PyMOL viewing software and keeping electronic notebooks so you will need your laptop for most lab sessions.
- **Google Drive:** Notebooks will be electronic using shared Google Docs

COURSE LEARNING OUTCOMES

At the end of the course, you will be able to:

- Recognize the amino acid residues in the active site of enzyme beta-galactosidase
- Apply these amino acids to the specific mechanism necessary for enzyme function
- Utilize the software PyMOL in order to generate a point mutation
- Construct mutant protein using recombinant expression techniques
- Execute assay to test functionality of mutant protein compared to WT
- Depict and represent data in a report format

Catalog Description: LAB: An inquiry-based laboratory that is a co-requisite for [CHE/BIO 4050](#). Letter graded.

EVALUATION

The activities described above will contribute to your total course grade according to the following:

- Attendance, Participation and Electronic Notebook..... 50%
- Writing Assignments..... 25%
- Final Lab Report..... 25%

ATTENDANCE

Your active participation each week is a significant portion of your grade in lab. Participation includes being present on time and contributing to the lab project for that week. Attendance and participation will be determined based on your Notebook entries and the TA will note any late arrivals and/or unexcused absences. Tardiness of more than 30 minutes will be considered an unexcused absence. Illness or participation in PLNU sponsored events are valid reasons for missing lab. If you need to miss lab, please discuss this with your instructor in advance, because it may be possible to join a different section for one week. Since you are working in partners on one continuous project, make-ups can be complicated, but not impossible.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive an "F" grade.

WRITING ASSIGNMENTS

There will be several writing assignments throughout the semester and are indicated on the lab schedule and in Canvas.

ELECTRONIC NOTEBOOK

Google Docs will be used for electronic lab notebooks this semester. Each week you will create a pdf of your Google Docs entry and submit to Canvas to be graded by your TA.

FINAL LAB REPORT

There will be a final lab report submitted at the end of the semester detailing the work with Beta-Galactosidase. This report will be written in the style of a research paper and will include an Abstract, Introduction, Methods, and Results/Discussion. There will be opportunities throughout the semester to submit drafts for comments and constructive feedback.

GRADE ASSIGNMENTS

Letter grades will be assigned at the end of the course for lab based on your percentage of total possible points, according to the following scale:

	A 93 – 100%	A- 90 – 92.9%
B+ 87 – 89.9 %	B 83 – 86.9 %	B- 80 – 82.9 %
C+ 77 – 79.9 %	C 73 – 76.9 %	C- 70 – 72.9 %
D+ 67 – 69.9 %	D 63 – 66.9 %	D+ 60 – 62.9 %
F < 59.9 %		

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by their due dates—including assignments posted in Canvas. Late work will not be accepted under most circumstances since there is significant time allotted to complete assignments. If you do need to submit late work, please discuss with the lab coordinator. Incompletes will only be assigned in extremely unusual circumstances.

LEARNING OUTCOMES

CHEM PLO 2 (UV-vis) and BCHM PLO 3 (UV-vis) will be assessed directly by faculty laboratory instructors' observation of students' use of instruments. Core competency of Written Communication will be assessed using the final lab report.

SPIRITUAL CARE

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.

If you have questions, a desire to meet with the chaplain or have prayer requests you can contact your professor or the [Office of Spiritual Life and Formation](#).

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on State Authorization to view which states allow online (distance education) outside of California.

PLNU RECORDING NOTIFICATION

In order to enhance the learning experience, please be advised that this course may be recorded by the professor for educational purposes, and access to these recordings will be limited to enrolled students and authorized personnel.

Note that all recordings are subject to copyright protection. Any unauthorized distribution or publication of these recordings without written approval from the University (refer to the Dean) is strictly prohibited.

LANGUAGE AND BELONGING

Point Loma Nazarene University faculty are committed to helping create a safe and hospitable learning environment for all students. As Christian scholars we are keenly aware of the power of language and believe in treating others with dignity. As such, it is important that our language be equitable, inclusive, and prejudice free. Inclusive/Bias-free language is the standard outlined by all major academic style guides, including MLA, APA, and Chicago, and it is the expected norm in university-level work. Good writing and speaking do not use unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, gender, sex, or sexual orientation. Inclusive language also avoids using stereotypes or terminology that demeans persons or groups based on age, disability, class, ethnicity, gender, race, language, or national origin. Respectful use of language is particularly important when referring to those outside of the religious and lifestyle commitments of those in the PLNU community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of hospitality.

If you (or someone you know) have experienced a bias incident regarding language, you can find more information on reporting and resources at www.pointloma.edu/bias.

ARTIFICIAL INTELLIGENCE (AI) POLICY

You are not allowed to use Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc) to generate content (text of any kind, video, audio, images) that will end up in any work submitted to be graded for this course. If you have any doubts about using AI, please gain permission from the instructor.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See Academic Policies for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines allowed accommodations. The EAC makes accommodations available to professors at the student's request.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course. Accommodations are not retroactive so clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any special accommodations.

SEXUAL MISCONDUCT AND DISCRIMINATION

In support of a safe learning environment, if you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that accommodations and resources are available through the Title IX Office at pointloma.edu/Title-IX. Please be aware that under Title IX of the Education Amendments of 1972, faculty and staff are required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at counselingservices@pointloma.edu or find a list of campus pastors at pointloma.edu/title-ix.

If you (or someone you know) have experienced other forms of discrimination or bias, you can find more information on reporting and resources at www.pointloma.edu/bias

PLNU COURSE MODALITY DEFINITIONS

Online Courses: These are courses with class meetings where all instruction and interaction is fully online.

Synchronous Courses: At least one class meeting takes place at a designated time.

Asynchronous Courses: All class meetings are asynchronous.

Hybrid Courses: These are courses with class meetings that take place both in the classroom and online synchronously and/or asynchronously.

In-Person Courses: These are courses that meet in person with the instructor and students in a physical classroom setting. With approval by the area dean, this may include up to 25% of qualified class interactions through a Learning Management System (such as Canvas).

LOMA WRITING CENTER

The Loma Writing Center exists to help all members of the PLNU community cultivate transferable writing skills to engage their academic, professional, personal, and spiritual communities. We work toward this goal by conducting one-on-one consultation sessions, supporting writing education across the PLNU community, and participating in ongoing writing center research.

Getting feedback from the Loma Writing Center while you're in the process of working on an assignment is a great way to improve the quality of your writing and develop as a writer. You are encouraged to talk with a trained writing consultant about getting started on an assignment, organizing your ideas, finding and citing sources, revising, editing for grammar and polishing final drafts, and more. For information about how to make in-person or online appointments, see Loma Writing Center webpage or visit the Loma Writer Center on the first floor of the Ryan Library, room 221.

Appointment Calendar: <https://plnu.mywconline.com/>

Website: <https://www.pointloma.edu/centers-institutes/loma-writing-center>

Email: writingcenter@pointloma.edu

COURSE SCHEDULE

The Schedule for this course is included as a separate document so please refer to CHE/BIO4050 Schedule available on our Canvas site for details.