

ADVANCED BIOCHEMISTRY LABORATORY

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 becomes and expression of faith. Being of Wesleyan heritage, we aspire 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 2023:

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 2 and Lab Coordinator)

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Marcela Bucardo (Section 3)

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[Click here for a video introduction to lab](#)

LAB SCHEDULE (Week-by-Week Schedule available on Canvas)

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

LECTURE SCHEDULE

Section 1: MWF	8:30 am – 9:25 am	LA 102
Section 2: MWF	11:00 am – 11:55 am	LA 102

OFFICE HOURS

All office hours are held in the **Rohr Science, 3rd floor conference room** or zoom (upon request)

Mon, Wed, Fri: 7:30 – 8:30 am

Tues: 9:30 – 11:30 am, 1:30 – 3:00 pm

Thurs: 11:00 am – 12:00 pm

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 POLICY: 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 the appropriate grade for their work and participation. In some courses, a portion of the credit hour content will be delivered **asynchronously** and attendance will be determined by submitting the assignments by the posted due dates. See [Academic Policies](#) in the Undergraduate Academic Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

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.

ADDITIONAL PLNU INFORMATION

SPIRITUAL CARE

PLNU strives to be a place where students 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 if you have prayer requests, you can contact the [Office of Student 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 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. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

ARTIFICIAL INTELLIGENCE (AI) POLICY

Use of Artificial Intelligence (AI) tools (e.g. ChatGPT, iA Writer, Marmot, Botowski) is not permitted, and use of these tools will be treated as plagiarism. This will also hurt you in terms of exam preparedness so doing your own work will only help you.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. 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 issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

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 and/or if they do not wish to utilize some or all of the elements of their AP in that course.

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.

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.

COURSE SCHEDULE

The Schedule for this course is included as a separate document so please refer to CHE/BIO4050L Schedule for details. The schedule is also available on our Canvas Site.