

# ADVANCED BIOCHEMISTRY

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 an 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 4050, Fall 2020:

Chemistry/Biology 4050 is an upper division course cross-listed from the Departments of Chemistry and Biology. This **3 unit course** runs concurrently with CHE/BIO4050L and is designed to teach the fundamental principles of the chemistry involved in biological processes with an emphasis on protein structure and how it relates to function. The beauty of biochemistry is that it offers fun and excitement for everyone. The chemistry of biological systems is my favorite thing to talk about, whether online for face to face, and I am confident we will have a fantastic semester together.

## INSTRUCTOR

Dr. Ariane Jansma, *Associate Professor*

Voice Mail: 619-849-2623

Email: [ajansma@pointloma.edu](mailto:ajansma@pointloma.edu)

Meet Prof J: <https://www.youtube.com/watch?v=1n8VZH8-Ylw&t=5s>

## OFFICE HOURS (Additional Zoom details on Canvas)

Tuesday, Thursday, and Friday 9:00 am – 10:00 am:

<https://pointloma.zoom.us/j/94025648883>

## Coffee with Prof J (Additional Zoom details on Canvas)

Monday and Wednesday 8:00 – 8:30 am:

<https://pointloma.zoom.us/j/96940100203>

## LECTURE SCHEDULE (Additional Zoom details on Canvas)

**Lecture, Section 1:** 11:00 am – 11:55 am

Monday and Wednesday:

<https://pointloma.zoom.us/meeting/register/tJ0ocuGqrTwjHtJ1R8-6lORhH8KPaDpGMB9a>

Friday: Pre-recorded lecture posted to Canvas by 8:00 am

**Lecture, Section 2:** 12:15 pm – 1:10 pm

Monday and Wednesday:

<https://pointloma.zoom.us/meeting/register/tJEuceGqqz0uHNFnQINISQlqJXq1Amw4PNRY>

Friday: Pre-recorded lecture posted to Canvas by 8:00 am

## LEARNING MATERIALS

- **Biochemistry, Concepts and Connections**, by Appling (with access to MasteringChemistry, Course ID: jansma45372), (ISBN: 9780321839763) **REQUIRED**
- **Course Website:** Canvas [canvas.pointloma.edu](https://canvas.pointloma.edu) CHE/BIO4050-1/2 FA20 – **Advanced Biochemistry**
- **PyMOL Software**, you will receive a tutorial the first week of class to help you install the student version of PyMOL (free)

## COURSE LEARNING OUTCOMES

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

- Recognize and reproduce the structures of the 20 amino acids
- Apply specific properties of these amino acids to protein folding and activity
- Identify and evaluate enzymatic active sites based on appropriate chemical reactivity
- Apply specific chemical reactions to the processes of metabolism and photosynthesis
- Recognize how and when cells must degrade or apoptose
- Outline defining mechanisms and lifecycles of several representative viruses

**Catalog Description:** Detailed analysis of protein and membrane structure. Includes quantitative approaches to the study of enzymes, catalytic mechanisms of enzymes, and a survey of the major metabolic pathways of carbohydrates, lipids, amino acids and nucleic acids.

## EVALUATION

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

- |                                       |     |
|---------------------------------------|-----|
| • Lecture Examinations (3).....       | 40% |
| • Attendance .....                    | 10% |
| • Homework Assignments.....           | 15% |
| • Quizzes.....                        | 15% |
| • Final Examination (Cumulative)..... | 20% |

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

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

## EXAMS

Three exams and a comprehensive final will be given during the semester via Canvas using the Honorlock system. Make-up exams will be arranged only if the instructor is contacted prior to the scheduled exam time and then only if you present an institutionally valid excuse. We will not have lab assignments on the week of an exam.

## **FINAL EXAMINATION POLICY**

Successful completion of this class requires taking the final examination **on its scheduled day**. The final examination schedule will be posted in Canvas. No requests for early examinations or alternative days will be approved.

## **ATTENDANCE**

**SYNCHRONOUS ATTENDANCE:** Monday and Wednesday lectures will be conducted synchronously via zoom at the appropriate time for each section. You are required to attend one of these two synchronous sessions each week. These lectures will be recorded and posted to Canvas for viewing at any time. It is recommended that you attend both sessions each week, but only one will be graded.

**ASYNCHRONOUS ATTENDANCE/PARTICIPATION:** Friday's material will be presented asynchronously and posted to Canvas each Friday by 8:00 am. A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, discussion, or submission by the posted due date, when applicable. Failure to meet these standards will result in an absence for that day.

**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.

## **HOMEWORK**

Homework will be assigned regularly through [MasteringChemistry](#) (Course ID: **jansma45372**). Successful completion of the homework is essential in mastering the course material. Late assignments will not be accepted.

## **QUIZZES**

Quizzes will be given via Canvas at the end of each week, assessing that week's material. The lowest quiz score will be discarded when final grades are computed.

## **ADDITIONAL PLNU INFORMATION**

### **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 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.

## **INCOMPLETES AND LATE ASSIGNMENTS**

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

## **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.

## **PLNU ACADEMIC ACCOMMODATIONS POLICY**

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center ([DRC@pointloma.edu](mailto:DRC@pointloma.edu) or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses. If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

## **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 students have questions, a desire to meet with the chaplain or have prayer requests you can contact the [Office of Spiritual Development](#)

## **USE OF TECHNOLOGY**

In order to be successful in the online environment, you'll need to meet the minimum technology and system requirements; please refer to the [Technology and System Requirements](#) information. Additionally, students are required to have headphone speakers compatible with their computer available to use. If a student is in need of technological resources please contact [student-tech-request@pointloma.edu](mailto:student-tech-request@pointloma.edu). Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

## **COURSE SCHEDULE**

Given the hybrid and online modalities being used in the 2020-2021 academic year, the content of the course schedule and assignments will be posted in Canvas as its own document.