

# Organic Structure Elucidation

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 grade is foundational, truth is pursued, and holiness is a way of life.

## Welcome to CHE 3051, Fall 2022:

Over the next 7 weeks, you will learn to use modern spectroscopic techniques including mass spectrometry, infrared spectroscopy, and especially one- and two-dimensional NMR spectroscopy to put together the structures of unknown organic molecules.

I look forward to solving lots of fun structure problems together!

### INSTRUCTOR

Dr. Ariane Jansma, Associate Professor

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[Meet Prof J Video](#)

### OFFICE HOURS

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

Mon and Wed: 12:00 pm – 2:00 pm

Tues: 10:00 am – 12:30 pm

Thurs: 11:00 am – 1:30 pm

### LECTURE SCHEDULE

MWF 12:15 pm – 1:20 pm LA02

### LAB SCHEDULE

This lab does not have an official day and time. You and a partner will be working to solve the structures of unknown molecules. You will be provided with both instructor and TA support throughout each week and sign-ups will be available for equipment use.

### REQUIRED TEXT BOOK and RECOMMENDED SUPPLIES

*Required:* Pavia, Lampman, Kriz and Vyvyan, *Introduction to Spectroscopy*, 5<sup>th</sup> Edition.

*Recommended:* Doucleff, Hatcher-Skeers, and Crane, *Pocket Guide to Biomolecular NMR*.

### Course Website

<https://canvas.pointloma.edu/> Course: CHE351-1 FA22 - Organic Structure Elucidation

Additional readings, assignments, exam keys, laboratory materials, and extra copies of class handouts will be available *only* on the course website.

## Introduction Problems

A few short Introduction Problems will be assigned daily and will often be used to begin class discussion. The questions will be based on that day's reading assignment and will cover new material. You will work on these problems outside of class. Answers to Intro Problems will be collected to verify *participation* and *effort*.

## Assignments

Problems requiring greater thought and reflection will be completed outside of class and will be due periodically throughout the course. (See the course schedule for due dates). In the interest of providing rapid feedback despite the large class size, only one or two of the assigned problems will be graded. *(Note that you won't be told which problem will be graded, so you would be wise to do your best on each!)* You are strongly encouraged to compare *all* your answers to the answer key, which will be posted on Canvas after the due date.

## Exams

There will be one midterm exam (one hour, in class) and one cumulative final exam (two and a half hours). See the course schedule for the dates of the exams.

Makeup examinations will be given only for excused absences. In such cases, appropriate documentation must be provided within two working days of the end of the excused absence.

## Laboratory

In the laboratory component of this course, you will apply what you are learning in class to the structure elucidation of two organic unknowns. Since you will be acquiring your own data on each instrument (of which there is typically only one), you'll need to sign-up online for times during the week to perform the lab. For lab each week, you and a partner will (1) acquire data using PLNU instrumentation, (2) perform an in-depth analysis of the data, and (3) answer analysis questions regarding your results. Two formal reports (one for each unknown) will also be due during the semester. Additional details regarding each aspect of the laboratory can be found in the lab manual, which will be distributed in the second week of class.

## Attendance

Regular attendance is absolutely essential to success in Chem 3051. Students who miss class for any reason are ultimately responsible for anything covered in that class (including announcements). Students who miss 20% of the total class meetings (4 meetings) may be dropped from the course. See [Academic Policies](#) in the Undergraduate Academic Catalog.

## Grades

Your final grade will be determined as follows:

Assignments	20%
Intro Problems	15%
Laboratory	30%
Midterm Exam	15%
Final Exam	20%
<b>Total</b>	<b>100%</b>

## **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](#).

## **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.

## **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**

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](mailto: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**

Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. 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 help and support are available through the Title IX Office at [pointloma.edu/Title-IX](http://pointloma.edu/Title-IX). Please be aware that under Title IX of the Education Amendments of 1972, it is 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](mailto:counselingservices@pointloma.edu) or find a list of campus pastors at [pointloma.edu/title-ix](http://pointloma.edu/title-ix)

## **COURSE SCHEDULE**

The Schedule for this course is included as a separate document so please refer to CHE3051 Schedule for details. The schedule is available in Modules on our Canvas Site.