


# Course Syllabus

 [Edit](#)

 <p><b>POINT LOMA</b> NAZARENE UNIVERSITY</p>	<p><b>CHEMISTRY 1003</b></p> <p><i>Introduction to General, Organic and Biological Chemistry</i></p> <p><b>4 Units (plus 1 unit CHE1003L corequisite laboratory)</b></p>
<p>Spring 2023</p>	

## Course info

<p><b>Meeting days:</b> MWF</p>	<p><b>Instructor title and name:</b> Dr. Kelly Hunter, Visiting Assistant Professor of Chemistry</p>
<p><b>Meeting times:</b> 12:15-1:20 pm</p>	<p><b>Phone:</b> 619-849-3407</p>
<p><b>Meeting location:</b> Liberty Station 203</p>	<p><b>Email:</b> <a href="mailto:khunter@pointloma.edu">khunter@pointloma.edu</a> (<a href="mailto:khunter@pointloma.edu">mailto:khunter@pointloma.edu</a>)</p>
<p><b>Final Exam:</b> 10:30 am - 1 pm on Friday, May 5th</p>	<p><b>Office hours:</b> Tuesday 10am - 12pm, Wednesday 8:30 - 9:30am, Friday 10:45-11:45am or by appointment in Rohr Science 316</p>

## PLNU Mission

**To Teach ~ To Shape ~ To Send**

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.

### **Foundational Explorations Mission**

PLNU provides a foundational course of study in the liberal arts informed by the life, death, and resurrection of Jesus Christ. In keeping with the Wesleyan tradition, the curriculum equips students with a broad range of knowledge and skills within and across disciplines to enrich major study, lifelong learning, and vocational service as Christ-like participants in the world's diverse societies and culture.

### **COURSE DESCRIPTION**

**From the PLNU Catalog:** Examination of those aspects of inorganic and organic chemistry that are pertinent to biology and chemistry. Examines the structures and metabolic reactions of biomolecules. Provides a background for nursing, family and consumer sciences and physical education majors. (Meets a general education requirement; does not count toward any Chemistry Department majors.)

Chemistry 1003 is an introductory chemistry class suitable for anyone who has never taken any chemistry classes before.

### **COURSE LEARNING OUTCOMES**

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

1. Speak fluently in the language of chemistry, describing the composition of matter at multiple levels: from the macroscopic to the atomic level.
2. Predict the properties of atoms, molecules, ions and molecular compounds, on the basis of structure.
3. Write balanced equations to describe common types of chemical transformations, including acid-base reactions.
4. Identify the main organic functional groups, and explain how intermolecular forces influence their properties.
5. Identify major classes of biological molecules, and describe how their chemical structure facilitates their biological function.

### **FOUNDATIONAL EXPLORATIONS LEARNING OUTCOMES**

The following Foundational Explorations Learning Outcome (FELO) will be assessed in this class:

**FELO 1e: Quantitative Reasoning:** Students will be able to solve problems that are quantitative in nature.

### **REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES**

Fundamentals of General, Organic and Biological Chemistry, by McMurry, Castellion, Ballantine, Hoeger and Peterson, Pearson, 8<sup>th</sup> Edition, **2017**. (ISBN-13: 9780134665708) *Required*

Modified Mastering Chemistry (Online homework platform that comes bundled with the textbook if you purchase it through the PLNU bookstore; for more information, visit [Course Materials](#).

(<https://canvas.pointloma.edu/courses/66183/pages/course-materials>.) *Required*

Calculator: Texas Instruments TI-30XA or equivalent. *Required*

## COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 4 unit class delivered over 15 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework. For this course, students will spend an estimated 150 total hours meeting the course learning outcomes.

## COURSE SCHEDULE AND ASSIGNMENTS

Note: This schedule is subject to change. Any substantial changes (i.e. changes to anything other than *Details* or *Readings*) will be announced on the *Announcements* page in Canvas, and modified here in the *Syllabus*. Up-to-date reading assignments will also be listed in each Week Overview.

Course schedule

WEEK	DAY	DETAILS	READING/NOTES
1	T 1/10	<ul style="list-style-type: none"> <li>• Course Introduction</li> </ul>	<ul style="list-style-type: none"> <li>• Syllabus</li> </ul>
	W 1/11	<ul style="list-style-type: none"> <li>• States of matter</li> <li>• Classification of matter</li> </ul>	<ul style="list-style-type: none"> <li>• ̈1.2</li> <li>• ̈1.3-1.5</li> </ul>
	F 1/13	<ul style="list-style-type: none"> <li>• Scientific measurements</li> <li>• Unit conversions &amp; density</li> </ul>	<ul style="list-style-type: none"> <li>• ̈1.6-1.9</li> <li>• ̈1.10, 1.12</li> </ul>
	Week 1 Assignment Due Sunday 1/15		
2	M 1/16	<i>Martin Luther King Jr. Day - No class</i>	
	W 1/18	<ul style="list-style-type: none"> <li>• Solving unit conversion problems</li> <li>• Atoms and subatomic particles</li> </ul>	<ul style="list-style-type: none"> <li>• ̈1.6-1.9, ̈1.10, 1.12</li> <li>• ̈2.1-2.2</li> </ul>
	F 1/20	<ul style="list-style-type: none"> <li>• Isotopes &amp; atomic mass</li> </ul>	<ul style="list-style-type: none"> <li>• ̈2.3</li> </ul>
	Week 2 Assignment Due Sunday 1/22		

3	M 1/23	<ul style="list-style-type: none"> <li>• <b>Quiz 1</b></li> <li>• The periodic table</li> </ul>	<ul style="list-style-type: none"> <li>• Chapters 1-2.3</li> <li>• 2.4, 2.5</li> </ul>
	W 1/25	<ul style="list-style-type: none"> <li>• Atomic structure</li> <li>• Ionic Compounds</li> </ul>	<ul style="list-style-type: none"> <li>• 2.6-2.9</li> <li>• Chapter 3</li> </ul>
	F 1/27	<ul style="list-style-type: none"> <li>• Covalent bonds</li> <li>• Drawing Lewis dot structures</li> </ul>	<ul style="list-style-type: none"> <li>• 4.1-4.4</li> <li>• 4.6, 4.7</li> </ul>
	Week 3 Assignment Due Sunday 1/29		
4	M 1/30	<ul style="list-style-type: none"> <li>• VSEPR and molecular shape</li> </ul>	<ul style="list-style-type: none"> <li>• 4.8</li> </ul>
	W 2/1	<ul style="list-style-type: none"> <li>• Electronegativity and polarity</li> <li>• Practice drawing molecules: Lewis structures and VSEPR</li> </ul>	<ul style="list-style-type: none"> <li>• 4.9, 4.10</li> <li>• Chapter 4</li> </ul>
	F 2/3	Catch up day	TBD
	Week 4 Assignment Due Sunday 2/5		
5	M 2/6	<ul style="list-style-type: none"> <li>• <b>Exam 1</b></li> </ul>	<ul style="list-style-type: none"> <li>• Chapters 1-4</li> </ul>
	W 2/8	<ul style="list-style-type: none"> <li>• Balancing chemical equations</li> <li>• Types of chemical reactions</li> </ul>	<ul style="list-style-type: none"> <li>• 5.1, 5.2</li> <li>• 5.3, 5.4</li> </ul>
	F 2/10	<ul style="list-style-type: none"> <li>• Oxidation &amp; reduction reactions</li> </ul>	<ul style="list-style-type: none"> <li>• 5.5, 5.6</li> </ul>
	Week 5 Assignment Due Sunday 2/12		
6	M 2/13	<ul style="list-style-type: none"> <li>• Moles and molecular weight</li> <li>• Solving mass-to-mass conversion problems</li> </ul>	<ul style="list-style-type: none"> <li>• 6.1-6.4</li> </ul>
	W 2/15	<ul style="list-style-type: none"> <li>• Reaction energy diagrams</li> <li>• Equilibria</li> </ul>	<ul style="list-style-type: none"> <li>• 7.1, 7.5, 7.6</li> <li>• 7.7-7.9</li> </ul>
	F 2/17	<ul style="list-style-type: none"> <li>• Solutions &amp; solubility</li> <li>• Calculating concentration</li> </ul>	<ul style="list-style-type: none"> <li>• 9.1-9.3</li> <li>• 9.6</li> </ul>
	Week 6 Assignment Due Sunday 2/19		

7	M 2/20	<ul style="list-style-type: none"> <li>• <b>Quiz 2</b></li> <li>• Dilutions</li> </ul>	<ul style="list-style-type: none"> <li>• Chapters 5-7</li> <li>• δ9.7</li> </ul>
	W 2/22	<ul style="list-style-type: none"> <li>• Calculating concentration practice</li> <li>• Electrolytes &amp; Osmolarity</li> </ul>	<ul style="list-style-type: none"> <li>• δ9.6-9.7</li> <li>• δ9.8, 9.10</li> </ul>
	F 2/24	<ul style="list-style-type: none"> <li>• Acid-base reactions</li> <li>• Equilibrium recap &amp; pKa</li> </ul>	<ul style="list-style-type: none"> <li>• δ10.1-10.2</li> <li>• δ10.3</li> </ul>
	Week 7 Assignment Due Sunday 2/26		
8	M 2/27	<ul style="list-style-type: none"> <li>• pH</li> <li>• Predicting acid strength and calculating pH</li> </ul>	<ul style="list-style-type: none"> <li>• δ10.4-10.6</li> <li>• δ10.3-10.6</li> </ul>
	W 3/1	Catch up day	TBD
	F 3/3	<ul style="list-style-type: none"> <li>• <b>Exam 2</b></li> </ul>	Chapters 5-7, 9, 10
	Week 8 Assignment Due <b>Friday 3/3</b>		
<i>SPRING BREAK WEEK: 3/6-3/11</i>			
9	M 3/13	<ul style="list-style-type: none"> <li>• Intro to Organic Chemistry: drawing organic structures</li> <li>• Isomers</li> </ul>	<ul style="list-style-type: none"> <li>• δ12.1-12.2, 12.4</li> <li>• δ12.3</li> </ul>
	W 3/15	<ul style="list-style-type: none"> <li>• Naming alkanes</li> <li>• Intermolecular forces</li> </ul>	<ul style="list-style-type: none"> <li>• δ12.6</li> <li>• δ8.2, 12.7</li> </ul>
	F 3/17	<ul style="list-style-type: none"> <li>• Organic functional groups</li> <li>• Naming alkenes &amp; alkynes</li> </ul>	<ul style="list-style-type: none"> <li>• δ12.2, <i>flip through 13.8, 14.1, 14.5, 14.7-14.9</i></li> <li>• δ13.2-13.3</li> </ul>
	Week 9 Assignment Due Sunday 3/19		
10	M 3/20	<ul style="list-style-type: none"> <li>• Isomers, part II</li> <li>• Naming alcohols &amp; ethers</li> </ul>	<ul style="list-style-type: none"> <li>• δ13.3</li> <li>• δ14.2, 14.7, 14.9</li> </ul>
	W 3/22	<ul style="list-style-type: none"> <li>• Intermolecular forces, part II</li> <li>• Naming aldehydes &amp; ketones</li> </ul>	<ul style="list-style-type: none"> <li>• δ14.3, <i>review δ8.2</i></li> <li>• δ15.2</li> </ul>
	F 3/24	<ul style="list-style-type: none"> <li>• <b>Quiz 3</b></li> <li>• Oxidation &amp; reduction of organic molecules</li> </ul>	<ul style="list-style-type: none"> <li>• Chapters 12-14</li> <li>• δ14.4, 15.5, 15.6</li> </ul>
	Week 10 Assignment Due Sunday 3/26		

11	M 3/27	<ul style="list-style-type: none"> <li>Naming &amp; classifying amines</li> <li>Acid-base reactions of amines</li> </ul>	<ul style="list-style-type: none"> <li>§16.2</li> <li>§16.5, 16.6</li> </ul>
	W 3/29	<ul style="list-style-type: none"> <li>Naming carboxylic acid derivatives</li> <li>Acid-base reactions of carboxylic acids</li> </ul>	<ul style="list-style-type: none"> <li>§17.1</li> <li>§17.2</li> </ul>
	F 3/31	<ul style="list-style-type: none"> <li>Formation and hydrolysis of amides and esters</li> </ul>	<ul style="list-style-type: none"> <li>§17.3, 17.4</li> </ul>
	Week 11 Assignment Due Sunday 4/2		
12	M 4/3	Catch up day	TBD
	W 4/5	<ul style="list-style-type: none"> <li><b>Exam 3</b></li> </ul>	Chapters 12-17
	F 4/7	<i>Easter Recess - No class</i>	
13	M 4/10	<i>Easter Recess - No class</i>	
	W 4/12	<ul style="list-style-type: none"> <li>Amino acids &amp; peptides</li> <li>Protein structure</li> </ul>	<ul style="list-style-type: none"> <li>§18.3-18.5</li> <li>§18.6-18.10</li> </ul>
	F 4/14	<ul style="list-style-type: none"> <li>Protein function, classes of enzymes</li> </ul>	<ul style="list-style-type: none"> <li>§18.2, 19.1-19.4</li> </ul>
	Week 13 Assignment Due Sunday 4/16		
14	M 4/17	<ul style="list-style-type: none"> <li>Chirality &amp; Fischer projections</li> <li>Isomers, part III</li> </ul>	<ul style="list-style-type: none"> <li>§14.10, 20.2</li> <li>§14.10</li> </ul>
	W 4/19	<ul style="list-style-type: none"> <li>Classifying sugars</li> <li>Biologically important sugars</li> </ul>	<ul style="list-style-type: none"> <li>§20.1-20.3</li> <li>§20.4, 20.6, 20.7</li> </ul>
	F 4/21	<ul style="list-style-type: none"> <li>Types of lipids</li> <li>Membranes</li> </ul>	<ul style="list-style-type: none"> <li>§23.1-23.3, 23.5, 23.6</li> <li>§23.7</li> </ul>
	Week 14 Assignment Due Sunday 4/23		

15	M 4/24	<ul style="list-style-type: none"> <li>• <b>Quiz 4</b></li> <li>• Reactions of lipids</li> </ul>	<ul style="list-style-type: none"> <li>• Chapters 20, 23</li> <li>• 23.4</li> </ul>
	W 4/26	<ul style="list-style-type: none"> <li>• Nucleic acids</li> <li>• The Central Dogma</li> </ul>	<ul style="list-style-type: none"> <li>• 26.1-26.3</li> <li>• 26.4</li> </ul>
	F 4/28	Catch up Day / Exam review	TBD
		Week 15 Assignment Due Sunday 4/30	
<b>10:30 am - 1 pm, Friday, May 5th</b>		<b><i>Comprehensive Final Exam</i></b>	

## ASSESSMENT AND GRADING

**Online Homework (Mastering Chemistry)** - Problems requiring greater thought and reflection will be completed outside of class and will be due each week on Sunday at 11:59pm PST. Given the large class size and recognizing the need for rapid feedback, assignments will be *electronic* and provided through Modified Mastering Chemistry. If you bought a new book from the bookstore, you already received access to Modified Mastering in your bundle; alternatively, access to Modified Mastering with the eBook can be purchased online. The Modified Mastering format allows you to check your answer in real time. Note that you have 5 attempts to answer each question, and 5% of each question's total will be deducted for each incorrect answer. The late penalty for Modified Mastering Chemistry is 5% of the total assignment score for every day the online homework is late.

**Guided Reading Notes (GRN)** - Guided Reading Notes are to be completed before every class period in order to prepare you to talk about that day's topic. The guided reading notes will be *based on that day's reading assignment* (which you can find in each week's Overview and in the Syllabus) and will cover new material. The guided reading notes will be due before every class period (12:15pm PST) and will be graded for participation and effort. Half credit will be given for any late assignments. The second half of the guided reading notes document (titled *Practice Problems*) will be completed in class and does not need to be turned in.

**Reflections** - After every quiz, you will complete a short reflection on Canvas about the course content and structure. Reflections will be graded for participation and effort.

**Quizzes** - Periodically, there will be in-class quizzes that you will complete with your group. See the course schedule for quiz dates.

**Exams** - There will be three midterm exams (one hour each, in class) and one final (two hours). Despite focusing on recently-covered material, midterm exams are technically *cumulative* and may assume knowledge from earlier in CHE1003. See the course schedule for exam dates.

The final exam is a *comprehensive* standardized multiple-choice exam published by the American Chemical Society.

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.

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

Grade distribution

<b>Online Homework (Mastering Chemistry)</b>	15%
<b>Guided Reading Notes and Reflections</b>	15%
<b>Quizzes</b>	20%
<b>Midterm Exams</b>	30%
<b>Final Exam (ACS Standardized Exam)</b>	20%

Student grades will be posted in the Canvas grade book throughout the course. Letter grades will be assigned at the end of the course based on your percentage of total possible points, according to the following scale:

Grade scale

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
A 93-100	B+ 87-89	C+ 77-79	D+ 67-69	F Less than 59
A- 90-92	B 83-86	C 73-76	D 63-66	
	B- 80-82	C- 70-72	D- 60-62	

## 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 \(https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures\)](https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures) to view which states allow online (distance education) outside of California.

## INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the date and time they are due. Due dates and times are posted on Canvas. Online homework through Modified Mastering Chemistry that is submitted late will be deducted 5% for every day that it is late. Guided reading notes that are submitted late will only receive half credit. Incompletes will only be assigned in extremely unusual circumstances.

## 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 \(http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278\)](http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278) 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) (<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) (<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) (<mailto:counselingservices@pointloma.edu>) or find a list of campus pastors at [pointloma.edu/title-ix](http://pointloma.edu/title-ix) (<http://pointloma.edu/title-ix>).

## **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 instructor 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.

## **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](https://www.pointloma.edu/offices/spiritual-development) (<https://www.pointloma.edu/offices/spiritual-development>).

## **USE OF TECHNOLOGY**

In order to be successful in the online or hybrid environment, you'll need to meet the minimum technology and system requirements; please refer to the [Technology and System Requirements](https://help.pointloma.edu/TDClient/1808/Portal/KB/ArticleDet?ID=108349) (<https://help.pointloma.edu/TDClient/1808/Portal/KB/ArticleDet?ID=108349>) information. Additionally, students are required to have headphone speakers, microphone, or webcams compatible with their computer available to use. Please note that any course with online proctored exams require a computer with a camera (tablets are not compatible) to complete exams online.

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.