POINT LOMA NAZARENE UNIVERSITY	**CHEMISTRY 1052** *General Chemistry I* **4 units**
Fall 2022	

Meeting days: MWF	**Instructor:** Dr. Sara Yu Choung
Meeting times: 11:00 AM - 12:05 PM	**Phone:** 619-849-2627
Meeting location: Taylor 106	**Email:** **sarachoung@pointloma.edu**
Final Exam: Wednesday, December 14, 4:30 - 7:00 PM	**Office location and hours:** Rohr Science 360, MRF 1:30 – 3:00 PM, R 10:00 – 11:30 AM, and by appointment

COURSE DESCRIPTION

Study of the basic principles of modern chemistry. Emphasis on atomic and molecular structure, chemical bonding, gas laws, states of matter, and solutions. Prerequisite(s): Satisfactory high school background or CHE 1003 or PSC 1014. Corequisite(s): CHE 1052L.

COURSE LEARNING OUTCOMES

An understanding of chemistry is a necessary part of an education in the basic and applied sciences, engineering, and medical professions. It also provides insight and increased comprehension regarding current events and proposed policies.

At the end of this course, students will be able to:

- Demonstrate a foundational knowledge of the general principles of chemistry including atomic and molecular structure, chemical bonding, states of matter, and behavior solutions.
- Solve problems related to unit conversions, stoichiometry, energy calculations, and gas laws.
- Perform basic chemical laboratory techniques related to the topics listed above.

Foundational Explorations Learning Outcome 1e Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature. This learning outcome will be assessed directly using problems on the final exam that are quantitative in nature.

COURSE MATERIALS

Textbook: Tro, Chemistry: A Molecular Approach Plus Modified MasteringChemistry with eText, Pearson, 5th Edition, ISBN-13: 9780135748626 (hardcover text), 9780135748763 (looseleaf text), or 9780134989884 (etext)

Online Homework: **MasteringChemistry**(bundled with text or purchased separately) Course ID: beauvais28683

Scientific Calculator: Non-graphing, non-programmable calculator required for exams and quizzes.

Clicker: I-Clicker 2, ISBN-13: 9781498603041

More information about course materials can be found **here**.

* These materials are used for both semesters of General Chemistry. No new materials will be required for General Chemistry II (CHE1053).

ASSESSMENT AND GRADING

1. Attendance: You are responsible for all the material covered during class. Regular and punctual attendance at all class sessions is expected and essential for success in this course. The use of portable electronic devices (phones, laptops, iPods, etc.) not related to the course is not permitted in the classroom.
2. Participation: Participation will be measured by the use of your registered clickers to answer questions throughout each class session. Points will be assigned for each question that you answer, not how many questions you get correct.
3. Christian Practices: My hope is for this class to be a welcoming, hospitable, and safe environment for everyone. This assignment is designed to help foster and encourage the development of community where the needs of others are considered, the Christian practice of love of neighbor. You will be assigned to a group at the beginning of the semester and you will be asked to pray for members of the group throughout the semester. You will meet as a group at least three times during the semester with the first meeting occurring in the first two weeks of class. You will be required to fill out a log that includes the times you met as a group, the times you have prayed for group members, as well as times that you have encouraged a classmate or helped them in some way. You will hand this log in at the end of the semester and will be required to have at least 10 entries in addition to the three group meetings. In addition, you will be required to write a brief reflection on the overall assignment. This assignment is worth 100 points (80 points for the log, 20 points for reflection). If you do not identify as Christian, please do not feel as though you must pretend otherwise for the sake of this assignment. You may replace the “prayer” component with some other mindful exercise that is compatible with your beliefs, but it should still be focused on specific members of your group. The rest of the assignment will remain the same.
4. Online Homework: Homework will be assigned regularly through **MasteringChemistry**(Course ID: beauvais28683) or Canvas assignments. Successful completion of the homework is essential in mastering the course material. Late assignments will not be accepted. Note that MasteringChemistry is not directly linked to Canvas, therefore it is your responsibility to check the MasteringChemistry calendar for due dates.
5. Exams and Quizzes: Four exams and a comprehensive final will be given during the semester. 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. Quizzes will be given periodically throughout the semester. Quizzes cannot be made up; however, the lowest quiz score will be discarded when final grades are computed. *Only non-graphing and non-programmable calculators may be used for exams and quizzes.*
6. Course Website: **Canvas** (CHE1052-4 FA22 – General Chemistry I) is used as a repository for course material such as lecture notes, slides, and miscellaneous items. Announcements will be sent out via Canvas. It is your responsibility to check Canvas regularly and to confirm that your correct email address is in the system. Grades will be posted periodically to Canvas.

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

Participation	5%
Christian Practices	5%
Homework Assignments	15%
Quizzes	5%
Exams (4)	50%
Final Exam	20%

Student grades will be posted in the Canvas grade book as they are graded. Final grades will be posted within one week of the end of the class. Grades will be based on the following:

Standard Grade Scale Based on Percentages

A	B	C	D	F
A 93-100	B+ 87-89	C+ 77-79	D+ 67-69	F Less than 59

A	B	C	D	F
A- 90-92	B 83-86	C 73-76	D 63-66	
	B- 80-82	C- 70-72	D- 60-62	

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.

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.

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 the appropriate grade for their work and participation.

INCOMPLETES AND LATE ASSIGNMENTS

Unless otherwise stated, all Pre-Class Assignments are due by MWF at 8:00 AM. All Homework Assignments are due by MWF at 11:59 PM. 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**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**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.

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**.

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**. 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** or find a list of campus pastors at **pointloma.edu/title-ix**

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*** 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.

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.

COURSE SCHEDULE AND ASSIGNMENTS

Note: This schedule is subject to change. Any substantial changes will be announced on the *Announcements* page in Canvas and modified here in the *Syllabus*. Reading assignments will be listed in each Weekly Overview.

Unless otherwise stated, all Pre-Class Assignments are due by MWF at 8:00 AM. All Homework Assignments are due by MWF 11:59 PM.

WEEK	DATE	LECTURE TOPICS	READING ASSIGNMENT	LABORATORY
1	8/30 (T)	Atoms, Molecules, Scientific Approach, Classification of Matter, Physical/Chemical Changes and Properties	1.1 – 1.4	**No Lab**
	8/31 (W)	Energy, Units/Reliability of Measurements and Solving Chemical Problems	1.5 – 1.8	
	9/2 (F)	Atoms, Modern Atomic Theory and Laws, Electrons, Atomic Structure and Subatomic Particles	2.1 – 2.6	
2	9/5 (M)	**Labor Day – No Class**		1 - Scientific Measurements
	9/7	Periodic Law, Periodic Table, Atomic Mass and Molar	2.7 – 2.9	

	(W)	Mass		
	9/9 (F)	Chemical Bonds, Chemical Formulas, Formula Mass, Composition of Compounds	3.1 – 3.4, 3.8 – 3.9	
3	9/12 (M)	Chemical Nomenclature and Molar Mass of Compounds	3.5 – 3.7	2- Zinc Iodide
	9/14 (W)	Composition of Compounds, Determining Chemical Formulas	3.9 – 3.10	
	9/16 (F)	**EXAM #1**	Chapters 1 – 3	
4	9/19 (M)	Writing & Balancing Chemical Equations, Reaction Stoichiometry	4.1 – 4.3	3 - Copper Cycle
	9/21 (W)	Limiting Reactant, Theoretical and Percent Yield, Examples of Chemical Reactions	4.4 – 4.5	
	9/23 (F)	Solution Concentration and Stoichiometry, Types of Aqueous Solutions	5.1 – 5.4	
5	9/26 (M)	Solubility, Precipitation Reactions, Representing Aqueous Reactions	5.5 – 5.6	4 - Acid-Base Titration
	9/28 (W)	Acid–Base and Gas Evolution Reactions, Oxidation–Reduction Reactions	5.7 – 5.9	
	9/30 (F)	Pressure, Gas Laws	6.1 – 6.4	
6	10/3 (M)	Applications of the Ideal Gas Law, Gas Mixtures and Gas Stoichiometry	6.5 – 6.7	5 - Ideal Gas Law
	10/5 (W)	Kinetic Molecular Theory, Diffusion, Effusion, and Real Gases	6.8 – 6.10	
	10/7 (F)	**EXAM #2**	Chapters 4 – 6	
7	10/10 (M)	Energy Definitions, Internal Energy, Heat and Work	7.1 – 7.4	6 - Molar Volume

	10/12 (W)	Calorimetry and Enthalpy	7.5 – 7.6	
	10/14 (F)	Calorimetry and H_{rxn}	7.7 – 7.8	
8	10/17 (M)	Enthalpy of Reaction, Nature of Light	7.9, 8.1 – 8.2	7 - Calorimetry
	10/19 (W)	Atomic Spectroscopy, Bohr Model	8.3	
	10/21 (F)	**Fall Break – No Class**		
9	10/24 (M)	Wave Nature of Matter, and Quantum Mechanics	8.4 – 8.5	8 - Hess's Law
	10/26 (W)	Quantum Mechanics, Atomic Orbitals, Electron Configurations	8.6, 9.1 – 9.3	
	10/28 (F)	Periodic Table, Electron Configurations, and Valence Electrons, Quantum Mechanical Model	9.4 – 9.5	
10	10/31 (M)	Periodic Trends and Ions	9.6 – 9.7	9 - Absorption and Emission Spectroscopy
	11/2 (W)	Electron Affinities, Metallic Character and Periodic Chemical Behavior, Exam Review	9.8 – 9.9	
	11/4 (F)	**EXAM #3**	Chapters 7 – 9	
11	11/7 (M)	Types of Chemical Bonds, Lewis Structures, and Ionic Bonding	10.1 – 10.4	10 - Conductivity
	11/9 (W)	Covalent Bonding, Electronegativity, Bond Polarity and Lewis Structures	10.5 – 10.7	
	11/11 (F)	Resonance and Formal Charge	10.8	
12	11/14 (M)	Exceptions to Octet Rule, Bond Energies, and Bond Lengths	10.9 – 10.10	11 - Lewis Structures

	11/16 (W)	VSEPR Theory and Molecular Geometries	11.1 – 11.4	
	11/18 (F)	Molecular Shape, Polarity and Valence Bond Theory	11.4 – 11.7	
13	11/21 (M)	Valence Bond Theory and Molecular Orbital Theory	11.7 – 11.8	
	11/23 (W)	**Thanksgiving Recess – No Class**		**Thanksgiving Recess** **No Lab**
	11/25 (F)	**Thanksgiving Recess – No Class**		
14	11/28 (M)	Molecular Orbital Theory and Intermolecular Forces	11.8, 12.1 – 12.3	
	11/30 (W)	Intermolecular Forces, Vaporization and Vapor Pressure	12.4 – 12.5	12 - Enthalpies of Fusion and Vaporization
	12/2 (F)	Sublimation, Fusion, and Heating Curves	12.6 – 12.7	
15	12/5 (M)	Phase Diagrams, Water, Exam Review	12.8 – 12.9	
	12/7 (W)	**EXAM #4**	Chapters 10 – 12	13 - Crystal Structures
	12/9 (F)	Final Exam Review		
16	12/14 (W)	**COMPREHENSIVE FINAL EXAM** **All Sections Wednesday 4:30 – 7:00 pm** ***(See Final Exam Schedule)***	Chapters 1 – 13	**No Lab**

ASSIGNMENTS AT-A-GLANCE

The table below lists our assignments and their due dates. Click on any assignment to review it.