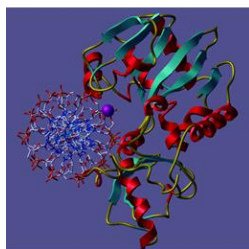
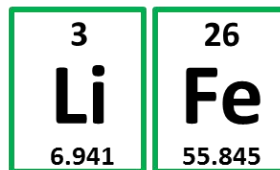


# Chemistry 103

## Fundamentals of General, Organic and Biological Chemistry

### Chemistry: The Science of



### Welcome to CHE 103, Spring 2016:

Chemistry 103 is an introductory chemistry class. This is a General Education requirement suitable for anyone who has never before taken chemistry. While chemistry may be new to some of you, I encourage you throughout this semester to work thoroughly, practice problems regularly and ask as many questions as necessary in order to succeed. Chemistry is a fundamental building block of life since every physiological process involves chemical reactions. In addition, knowledge of chemistry is critical in the development of drugs designed to help when biochemical systems are not functioning properly. As such, I will seek to demonstrate the biological relevance of chemistry as often as possible throughout this course. Ultimately, chemistry is my favorite subject to talk about and I am happy you are here. I look forward to helping you discover this very exciting field.

### INSTRUCTOR

Ariane Jansma, Ph.D.

Office: Rohr Science, 305E

Phone: 619-849-2623

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

Canvas: <https://canvas.pointloma.edu>

### Office Hours:

**M** 11:00 am – 2:00 pm

**T** 11:30 am – 1:30 pm

**WF** 11:00 am – 1:30 pm

Any time by appointment

### SCHEDULE

Class: MWF 8:35 am – 9:40 am

LBRT 204A

Lab Section 1: R 9:30 am – 12:20 am

ST 221

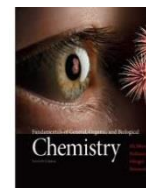
Lab Section 2: R 1:30 am – 4:20 pm

ST 221

## TEXT BOOK and SUPPLIES

- Fundamentals of General, Organic and Biological Chemistry, by McMurry, Castellion, Ballantine, Hoeger and Peterson, Pearson, 7<sup>th</sup> Edition, 2012 (with Mastering Chemistry) (ISBN: 9780321750112)

*Required*



- Laboratory Experiments to Accompany General, Organic and Biological Chemistry: An Integrated Approach, 3<sup>rd</sup> Edition, by Charles Anderson, David B Macaulay, 2013 (ISBN: 978-1-119-91825-7)

*Required*



- Calculator: Texas Instrument TI-30XA or equivalent, non-programmable, no text entry

*Required*



- Laboratory safety glasses: sold by the Chemistry Department

*Required*



## COURSE GOALS and LEARNING OBJECTIVES

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

- Identify the different properties of solids, solutions and gases
- Describe the properties of atoms, ions, molecules and molecular compounds
- Write and balance chemical reactions and explain the energies associated with them
- Identify the main functional groups (alkenes, amines, ketone, alcohol)
- Describe the composition of a drug from the atomic to the macroscopic level
- Utilize basic biochemistry concepts to assemble proteins and describe their functions

## ATTENDANCE

Attendance is absolutely necessary for success in this class. We will spend time in class discussing the material and working problems which will be covered in the exams. Regular class attendance and participation is REQUIRED and will be monitored. Prior instructor notification via email is necessary for an absence to be excused. Missed assignments can only be made up for full credit for excused absences and students are responsible for all assignments and material covered.

## HOMEWORK

Online homework will be assigned through MasteringChemistry ([www.masteringchemistry.com](http://www.masteringchemistry.com) course ID: SP15CHE103). This program will allow you to put into practice what you have learned and you will be given several attempts to complete each problem. Successful completion of the homework problems is extremely important for success in this course. Although homework is only 10% of your final grade, it is designed to prepare you for the exams and therefore is potentially worth ~80% of your overall grade. Late assignments will be accepted for partial credit up to 70% provided they are turned in within one week past the deadline. I also encourage you to work additional problems as often as possible for practice and come to office hours with any and all questions.

## EVALUATION

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

- Lecture Examinations (3)..... 30%
- Online Homework..... 10%
- RATs, Quizzes and Participation..... 20%
- Laboratory..... 20%
- Final Examination..... 20%

## GRADES

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 %		

## ACADEMIC DISHONESTY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. As stated in the university catalog, “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. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for a) that particular assignment or examination, and/or b) the course.” See [Academic Policies](#) in the undergrad student catalog.

## ACADEMIC ACCOMMODATION

While all students are expected to meet the minimum academic standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student’s instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual learning needs of the student. This policy assists the University in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities (ADA) Act of 1990, and ADA Amendments Act of 2008, all of which prohibit discrimination against students with disabilities and guarantees all qualified students equal access to and benefits of PLNU programs and activities.

## FERPA POLICY

In compliance with federal law, neither PLNU student ID nor social security number should be used in publically posted grades or returned sets of assignments without student written permission. This class will meet the federal requirements by (each faculty member choose one strategy to use: distributing all grades and papers individually; requesting and filing written student permission; or assigning each

student a unique class ID number not identifiable on the alphabetic roster.). Also in compliance with FERPA, you will be the only person given information about your progress in this class unless you have designated others to receive it in the "Information Release" section of the student portal. See Policy Statements in the undergrad student catalog.

### CHEMISTRY 103 TENTATIVE CLASS SCHEDULE

WEEK	DATE	LECTURE TOPICS	CHAPTERS	LAB
Week 1	Tues 01/12	Introduction: syllabus/ course overview	////////////////////	No lab
	Wed 01/13	Ch 1: Measurements in Chemistry	1	
	Fri 01/15	Ch 1: Measurements in chemistry	1	
Week 2	Mon 01/18	<b>MLK Day – no class</b>	1	Lab 1: Measurement
	Wed 01/20	Ch 1: Measurements in chemistry and Practice	1	
	Fri 01/22	Ch 2: Atoms and the Periodic Table	2	
Week 3	Mon 01/25	Ch 2: Atoms and the Periodic Table and Practice Problem Session ( <b>scheduled RAT</b> )	2	Lab 3: Ions, role in nutrition
	Wed 01/27	Ch 3: Ionic Compounds	3	
	Fri 01/29	Ch 3: Ionic Compounds	3	
Week 4	Mon 02/01	Ch 4: Molecular Compounds	4	Handout Practice Session
	Wed 02/03	Ch 4: Molecular compounds	4	
	Fri 02/05	<b>EXAM 1</b> (Chapters 1 to 4)	////////////////////	
Week 5	Mon 02/08	Ch 5: classification and balancing chemical reactions	5	Lab 7: Chemical Reactions
	Wed 02/10	Ch 5: classification and balancing chemical reactions	5	
	Fri 2/12	Ch 6: Chemical reactions: mass relationship ( <b>scheduled RAT</b> )	6	
Week 6	Mon 02/15	Ch 6: Chemical reactions: mass relationship	6	Lab 8: Stoichiometry, Mole Relationship
	Wed 02/17	Ch 9: Solutions	9	
	Fri 02/19	Ch 9: Solutions	9	
Week 7	Mon 02/22	Ch 10: Acids and Bases	10	Lab 10: Acids and Bases
	Wed 02/24	Ch 10: Acids and Bases	10	
	Fri 02/26	Ch 12: Introduction to Organic Chemistry: Alkanes	12	
Week 8	Mon 02/29	Ch 13: Alkenes and Aromatic Compounds ( <b>Review sessions at office hours</b> )	13	Lab 12: Aspirin
	Wed 03/02	Ch 13: Alkenes, Alkynes and Aromatic Compounds	13	
	Fri 03/04	<b>EXAM 2</b> (Chapters 5 to 12)	////////////////////	

Week 9	Mon 03/07	<b>Spring Break – NO CLASS</b>	////////////////////	No lab
	Wed 03/09	<b>Spring Break – NO CLASS</b>	////////////////////	
	Fri 03/11	<b>Spring Break – NO CLASS</b>	////////////////////	
Week 10	Mon 03/14	Ch 14: Some Compounds with oxygen, sulfur or halogen	14	Handout: Indigo Synthesis, Part 1
	Wed 03/16	Ch 15: Amines	15	
	Fri 03/18	Ch 16: Aldehydes and Ketones (Scheduled <b>RAT</b> )	16	
Week 11	Mon 03/21	Ch 16: Aldehydes and Ketones	16	Handout: Indigo Synthesis, Part 2
	Wed 03/23	Ch 17: Carboxylic acids	17	
	Fri 03/25	<b>Easter Recess – NO CLASS</b>	////////////////////	
Week 12	Mon 03/28	<b>Easter Recess – NO CLASS</b>	////////////////////	Lab 16: Proteins
	Wed 03/30	Ch 18: Amino Acids and Proteins	18	
	Fri 04/01	Ch 18: Amino Acids and Proteins	18	
Week 13	Mon 04/04	Ch 19: Enzymes	19	Lab 17: Enzymes
	Wed 04/06	Ch 19: Enzymes	19	
	Fri 04/08	<b>EXAM 3</b> (Chapters 16-17, 22 and 24)		
Week 14	Mon 04/11	Ch 21: Carbohydrates	21	Lab 14: Carbohydrates
	Wed 04/13	Ch 21: Carbohydrates (Scheduled <b>Quiz</b> )	21	
	Fri 04/15	Ch 21: Carbohydrates	21	
Week 15	Mon 04/18	Ch 22: Carbohydrate Metabolism	22	Lab 4: Paper and Thin layer chromatography
	Wed 04/20	Ch 22: Carbohydrate Metabolism – (Scheduled <b>RAT</b> )	22	
	Fri 04/22	Ch 22: Carbohydrate Metabolism	22	
Week 16	Mon 04/25	Ch 23: Lipids	23	Lab 15: Lipids
	Wed 04/27	Ch 24: Lipids Metabolism	24	
	Fri 04/29	<b>Final Review Session</b>	////////////////////	
Week 17	Mon 05/02	<b>Finals Week</b>	////////////////////	No lab
	Wed 05/04	<b>Finals Week</b>	////////////////////	
	Fri 05/06	<b>Finals Week</b>	////////////////////	