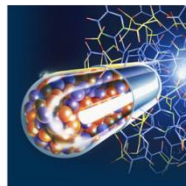
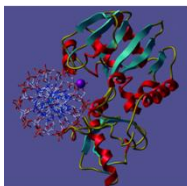


Chemistry 103

Fundamentals of General, Organic and Biological Chemistry

Chemistry:
The Science of



Welcome to CHE 103, Spring 2017:

Chemistry 103 is an introductory chemistry class. 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.

Course Catalog Description

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; must also take CHE 103L with this option.)

INSTRUCTOR

Ariane Jansma, Ph.D.

Office: Rohr Science, 305D

Phone: 619-849-2623

Email: ajansma@pointloma.edu

Office Hours:

MWF 12:30 pm – 2:00 pm

T 9:00 am – 1:30 pm

Any time by appointment

SCHEDULE

Class: MWF 11:00 am – 12:05 pm

Lab Section 1: R 9:30 am – 12:20 am

Lab Section 2: R 1:30 am – 4:20 pm

LBRT 204A

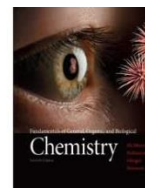
ST 221

ST 221

TEXT BOOK and SUPPLIES

- Fundamentals of General, Organic and Biological Chemistry, by McMurry, Castellion, Ballantine, Hoeger and Peterson, Pearson, 8th Edition, 2012 (with Mastering Chemistry)
(ISBN: 9780321750112)

Required



- Laboratory Experiments to Accompany General, Organic and Biological Chemistry: An Integrated Approach, 3rd 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 and lab coat: 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 course ID: CHE103SP17). 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. The homework is designed to prepare you for the exams and therefore is potentially worth ~80% of your overall grade. Late assignments will only be accepted with a valid excuse and must be discussed with the professor on a case by case basis.

EVALUATION

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

- Lecture Examinations (3)..... 30%
- Online Homework..... 25%
- RATs, Quizzes and Participation..... 25%
- Final Examination..... 20%

The Laboratory portion of this class receives a separate grade with 1 unit of credit. Your lab grade will be based primarily on attendance so DO NOT MISS LAB, in addition to quizzes and lab reports.

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:

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

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examination **on its scheduled day**. The final examination schedule is posted below as well as the Class Schedules site. No requests for early examinations or alternative days will be approved.

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. See [Academic Policies](#) in the undergrad student catalog for definitions of kinds of academic dishonesty and for further policy.

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 ATTENDANCE and PARTICIPATION POLICY

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If a student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in 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. See Academic Policies in the Undergraduate Academic Catalog.

PLNU ACADEMIC ACCOMMODATION

If you have a diagnosed disability, please contact PLNU’s Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619-849-2486 or by email at DRC@pointloma.edu. See Disability Resource Center for additional information.

PLNU MISSION STATEMENT

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.

CHEMISTRY 103 TENTATIVE CLASS SCHEDULE

WEEK	DATE	LECTURE TOPICS	CHAPTERS	LAB
Week 1	Tues 01/10	Introduction: syllabus/ course overview	ASSIGN Hwk Intro	No lab
	Wed 01/11	Ch 1: Measurements in Chemistry	1.1 – 1.6	
	Fri 01/13	Ch 1: Measurements in chemistry	1.7 – 1.10 Hwk Intro: DUE	
Week 2	Mon 01/16	MLK Day – no class	////////////////////	01/19 Lab 1: Measurement
	Wed 01/18	Ch 1: Measurements in chemistry and Practice	1.11 – 1.12 ASSIGN Hwk 1	
	Fri 01/20	Ch 2: Atoms and the Periodic Table AT HOME: Atoms and Periodic Table, 2.4 – 2.6	1.13 – 1.14 2.1 – 2.3	
Week 3	Mon 01/23	Ch 2: Atoms and the Periodic Table and Practice Problem Session (scheduled RAT)	2.7 – 2.9	01/26 Lab 3: Ions, role in nutrition
	Wed 01/25	Ch 3: Ionic Compounds AT HOME: Ionic Compounds in water	3.1 – 3.5 Hwk 1 DUE ASSIGN Hwk 2	
	Fri 01/27	Ch 3: Ionic Compounds	3.6 – 3.10	
Week 4	Mon 01/30	Ch 4: Molecular Compounds	4.1 – 4.4	02/02 Handout Practice Problems
	Wed 02/01	Ch 4: Molecular compounds AT HOME: Polar Molecules	4.5 – 4.10 Hwk 2 DUE	
	Fri 02/03	EXAM 1 (Chapters 1 to 4)	////////////////////	
Week 5	Mon 02/06	Ch 5: classification and balancing chemical reactions	5.1 – 5.4	02/09 Lab 7: Chemical Reactions 6.1
	Wed 02/08	Ch 5: classification, balancing chemical reactions AT HOME: Chemical Reactions, 5.6, 5.8	5.5, 5.7 ASSIGN Hwk 3	
	Fri 2/10	(scheduled RAT) Ch 6: Chemical reactions: mass relationship	6.2 – 6.3	
Week 6	Mon 02/13	Ch 6: Chemical reactions: mass relationship	6.4 – 6.5	02/16 Lab 8: Stoichiometry, Mole Relationship
	Wed 02/15	Ch 8.2 and Ch 9: Solutions	8.2, 9.1 – 9.5 Hwk 3 DUE ASSIGN Hwk 4	
	Fri 02/17	Ch 9: Solutions	9.6 – 9.12	
Week 7	Mon 02/20	Review of Chemistry up to this point (worked out problems, etc.)	////////////////////	02/23 Lab 10: Acids and Bases
	Wed 02/22	Ch 10: Acids and Bases	10.1 – 10.7	
	Fri 02/24	Ch 10: Acids and Bases	10.8 – 10.13 HWK 4 DUE	

Week 8	Mon 02/27	Introduction to Organic Chemistry Ch 12: Alkanes	12.1 – 12.4 ASSIGN Hwk 5	03/02 Lab 12: Aspirin
	Wed 03/01	Review day for Exam 2	////////////////////	
	Fri 03/03	EXAM 2 (Chapters 5 to 12)	Hwk 5 DUE at the exam	
Week 9	Mon 03/06	SPRING BREAK – NO CLASS	////////////////////	No Lab
	Wed 03/08	SPRING BREAK – NO CLASS	////////////////////	
	Fri 03/10	SPRING BREAK – NO CLASS	////////////////////	
Week 10	Mon 03/13	Ch 13/14: Alkenes and molecules with oxygen, sulfur or halogen (general overview)	ASSIGN Hwk 6 13/14	03/16 Handout: Indigo Synthesis
	Wed 03/15	Ch 14/15: Amines AT HOME: 14.3 and 15	14.3 and 15 overview	
	Fri 03/17	Ch 16: Aldehydes and Ketones	16.1 – 16.5	
Week 11	Mon 03/20	Ch 16: Aldehydes and Ketones Ch 17: Carboxylic Acids	Hwk 6 DUE 16.6 – 16.7	03/23 Lab 4: Paper and Thin layer chromatography
	Wed 03/22	Ch 17: Carboxylic acids	17 ASSIGN Hwk 7	
	Fri 03/24	Organic Chemistry Review	////////////////////	
Week 12	Mon 03/27	Ch 18: Amino Acids and Proteins	18 Hwk 7 DUE ASSIGN Hwk 8	03/30 Lab 16: Proteins
	Wed 03/29	Ch 18: Amino Acids and Proteins	18	
	Fri 03/31	Ch 18: Protein Tertiary Structure	18	
Week 13	Mon 04/03	Exam 3 Review	////////////////////	04/06 Lab 17: Enzymes
	Wed 04/05	EXAM 3 (Chapters 12-18)	Hwk 8 DUE	
	Fri 04/07	Ch 19: Enzymes	19 ASSIGN Hwk 9	
Week 14	Mon 04/10	Ch 19: Enzymes	19	No Lab
	Wed 04/12	Ch 19: Enzymes Ch 21: Carbohydrates	19 and 21	
	Fri 04/14	Easter Recess – NO CLASS	////////////////////	
Week 15	Mon 04/17	Easter Recess – NO CLASS	////////////////////	04/20 Lab 14: Carbohydrates
	Wed 04/19	Finish Ch 21:, Ch 22: Carbohydrate Metabolism	22 Hwk 9 DUE ASSIGN Hwk 10	
	Fri 04/21	Ch 22: Carbohydrate Metabolism	22	
Week 16	Mon 04/24	Ch 22: Carbohydrate Metabolism	22	04/27 Lab 15: Lipids
	Wed 04/26	Ch 23: Lipids/Metabolism	23	
	Fri 04/28	Quick look at Malaria and Final Review Session	Hwk 10 DUE	

Week 17	Mon 05/01	Finals Week	////////////////////	No lab
	Wed 05/03	FINAL EXAM 4:30 pm	////////////////////	
	Fri 05/06	Enjoy your summer!	////////////////////	