CHEMISTRY 103
Fundamentals of General, Organic and Biological Chemistry

Welcome to CHE 103:

Chemistry 103 is an introductory chemistry class, and it is suitable for anyone who has never taken any chemistry classes before and is a General Education requirement. Chemistry might be scary for some of you, but I would like to challenge you to work regularly, practice and ask questions in order to succeed. Some teaching methods used in this course (group and team work, peer evaluation, online lectures) might be different than what you are used to, yet I am confident that it will increase your learning experience and you will be better prepared for your future endeavors. I'm glad you are here and I look forward to helping you discover or rediscover the importance of chemistry in your environment.

INSTRUCTOR

Dr. Matthieu Rouffet
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Office Hours:
F 2:00 pm – 4:00 pm
TR 2:30 pm – 4:30 pm
and by appointment

TIME & LOCATION

Section 1 MWF 8:15 am –9:20 pm LBRT 205

Section 2 MWF 11:00 am – 12:05 pm Latter Hall 1

TEXTBOOK & SUPPLIES

- Fundamental of General, Organic and Biological Chemistry, by McMurry, Castellion, Ballantine, Hoeger and Peterson, Pearson, 8th Edition, **2017**. (ISBN-13: 978-0134218328) *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. *Required*

- iClicker 2: *Required*

- Laboratory safety glasses: sold by the Chemistry Department, *Required.*

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 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.

COURSE GOALS and LEARNING OUTCOMES

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

- Describe the composition of a drug at multiple levels: from macroscopic to atomic level
- Describe the role and properties of atoms, molecules, ions and molecular compounds
- Write chemical reactions and explain the energies associated with them
- Explain the different properties of gases, solutions and solids
- Discover the main functional groups (alkenes, amines, ketone, alcohol, acids)
- Explore some key elements of biological chemistry (proteins, carbohydrates and lipids)

GENERAL EDUCATION LEARNING OUTCOMES

- GELO 1e will be assessed directly using problems on the final exam that are quantitative in nature.

FINAL EXAMINATION POLICY

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

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

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 e-mail at DRC@pointloma.edu. See Disability Resource Center for additional information.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the 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.

ADMINISTRATION

- Online Homework: Homework will be assigned regularly through Mastering Chemistry (www.masteringchemistry.com course ID: **FA17CHE103**). This program will allow you to put into practice what you learned and don't worry; you'll have several attempts to complete each problem. Successful completion of the homework is essential in mastering the course material. Late assignments will be accepted for partial credit (within one week).

- Exams and Quizzes: Three (3) lecture exams, a comprehensive final exam and several Readiness Assurance Tests (RAT) 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. In addition, remember that only non-graphing and non-programmable calculators may be used for exams and quizzes

EVALUATION

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

- Lecture Examinations (3)…… 30%
- Online Homework..…….. 10%
- RAT+ participation.……..... 20%
- Laboratory…… 20%
- Final Examination..…….…..... 20%

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

CHEMISTRY 103 TENTATIVE CLASS SCHEDULE

WEEK	DATE	LECTURE TOPICS	CHAPTERS	LAB
Week 1	Tue 08/29	Introduction: syllabus/ course overview/ team building	//////////////////////////	No lab
	Wed 08/30	Ch 1: Measurements in chemistry	1	
	Fri 09/01	Ch 1: Measurements in chemistry	1	
Week 2	Mon 09/04	**Labor day**	//////////////////////////	Lab 1: Measurement
	Wed 09/06	Ch 1: Measurements in chemistry	1	
	Fri 09/08	Ch 1: conversion practice	1	
Week 3	Mon 09/11	Chapter 2: Atoms and the Periodic Table **individual RAT + team RAT**	2	Lab 1: Practice problems
	Wed 09/13	Chapter 2: Application Exercises	2	
	Fri 09/15	Ch 3: Ionic Compounds	3	
Week 4	Mon 09/18	Ch 3: Ionic Compounds	3	Lab 3: Ions, role in Nutrition
	Wed 09/20	Ch 4: Molecular Compounds: **individual RAT + team RAT**	4	
	Fri 09/22	Ch 4: Molecular compounds	4	
Week 5	Mon 9/25	**EXAM 1** (Chapters 1 to 4)	//////////////////////////	Lab 7: Chemical Reactions
	Wed 9/27	Ch 5: classification and balancing chemical reactions	5	
	Fri 9/29	Ch 5: classification and balancing chemical reactions+ Ch 6: Chemical reactions: mass relationship	6	
Week 6	Mon 10/02	Ch 6: Chemical reactions: mass relationship	6	Lab 8: Stoichiometry: Mole Relationship
	Wed 10/04	Ch 9: Solutions **RAT**	9	
	Fri 10/06	Ch 9: Solutions	9	
Week 7	Mon 10/09	Ch 10: Acids and Bases	10	Lab 12 : Aspirin and related compounds
	Wed 10/11	Ch 10: Acids and Bases	10	
	Fri 10/13	Ch 10: Acids and Bases	10	
	Mon 10/16	Ch 12: Introduction to Organic Chemistry **RAT**	12	Lab 10:

Week 8	Wed 10/18	Ch 12: Introduction to Organic Chemistry	12	Acid, Bases, Buffer and Antacids
	Fri 10/20	**No class…..Fall break**	//////////////////////////	
Week 9	Mon 10/23	Ch 12 + review session for exam 2	//////////////////////////	Lab 4 : Paper and thin layer chromatography
	Wed 10/25	**EXAM 2** (Chapters 16-17, 22 and 24)	//////////////////////////	
	Fri 10/27	Ch 13: Alkenes, alkynes and aromatic	13	
Week 10	Mon 10/30	Ch 14: Alcohols, phenols and thiols	14	handout Indigo Synthesis (part 1)
	Wed 11/01	Ch 15: Amines	15	
	Fri 11/03	Ch 15: Amines	15	
Week 11	Mon 11/06	Ch 16: Aldehydes and Ketones	16	handout Indigo Synthesis (part 2)
	Wed 11/08	Ch 16: Aldehydes and Ketones	16	
	Fri 11/10	Ch 16: Aldehydes and Ketones	16	
Week 12	Mon 11/13	Ch 17: Carboxylic acids	17	Lab 14: Carbohydrates
	Wed 11/15	Ch 17: carboxylic acids	17	
	Fri 11/17	Review session on carbonyl chemistry	16-17	
Week 13	Mon 11/20	**EXAM 3** (Chapters 13-17)	//////////////////////////	No lab
	Wed 11/22	**No class……Thanksgiving break**	//////////////////////////	
	Fri 11/24	**No class……Thanksgiving break**	//////////////////////////	
Week 14	Mon 11/27	Ch 22: Carbohydrates	22	Lab 15: lipids
	Wed 11/29	Ch 22: Carbohydrates	22	
	Fri 12/01	Ch 18: Amino Acids and Proteins	18	
Week 15	Mon 12/04	Ch 18: Amino Acids and Proteins	18	Lab 16: Proteins
	Wed 12/06	Ch 23: lipids	23	
	Fri 12/08	Ch 23: Lipids	23	
Week 16	Mon 12/11	Review sessions		No Lab
	Wed 12/13	**Exam section 1 and 2**	4.30 pm- 7 pm	