



SAINT LOUIS UNIVERSITY
MADRID

CHEM-1110-M01 General Chemistry 1

Spring 2020

Class Days and Time: MWF 12:00 - 12:50

Classroom: PAH 20

Prerequisite(s): Math 1200 or Chem1050/1060 with a minimum grade of C-. Must enroll also in Chem 1115

Credit(s): 3

Lab: 1 credit. Your lab grade is an entirely separate grade determined by your lab instructor, and it will appear as such on your transcript. **Lab attendance is mandatory, unless excused by illness. Missing more than three labs will be graded as F.**

Instructor: Tania de la Fuente

Instructor's Email: tania.delafuente@slu.edu

Instructor's Campus Phone: 91 554 58 58, ext. 268

Office: PAH-204

Office Hours: MW 10:00 - 11:00, or by appointment

Course Description:

The science of substances, their composition, combination and change. Study of atomic theory, the structure of the atom, stoichiometry, electronic structures of atoms, periodic properties of the elements, basic concepts in thermodynamics and those of chemical bonding, Lewis symbols and ionic bonding, molecular geometry and bonding theories, and gases, solutions, and intermolecular forces.

Course Goals and Student Learning Outcomes:

Objectives

- To understand measurement techniques used in chemistry
- To get a good overview of basic theories regarding atoms and molecules and their structure
- To understand what governs chemical reactivity
- To get to know the fundamentals of the structure of gases, liquids and solids

Chemistry Program Objectives

- A. Students will identify the principles of modern chemistry and demonstrate their application to a range of common systems. This includes:
 1. Being able to perform quantitative calculations using experimental data.
 2. Explain the physical and chemical properties of substances based on an understanding of atomic, molecular and supermolecular structure.
 3. Connect observations with prior information, this includes prediction and identification of chemical/biochemical reaction products.
- B. Students will connect the theory learned in classes with procedures learned in a laboratory setting.

Student Learning Outcomes:

| Program Objectives | Student Learning Outcomes | Assessment Method |
|--------------------|---|---|
| A | <ol style="list-style-type: none">1. Describe the SI unit and convert units.2. Show answers the correct scientific notation and number of significant figures3. The basic structures of atoms, ions, and molecules, and ways to quantitatively describe the properties of atoms and molecules in the various phases of pure matter and in mixtures4. The reactivity of atoms, ions, and molecules, and the various qualitative and quantitative methods for describing or depicting chemical reactions5. The concept of chemical equilibrium, and the energies that drive chemical reactions: an introduction to the field of thermodynamics.6. The concept of chemical kinetics and the energy required to initiate a chemical reaction.7. The relationship between the electronic configurations of atoms and molecules and their chemical properties: an introduction to the field of quantum mechanics. | Exams, quizzes, homework and Final exam |
| B | Connect the theory with the lab procedures | Exams, quizzes, homework and Final exam |

Assessment of Student Learning: In order to maintain quality academic offerings and to conform to accreditation requirements, SLU-Madrid regularly assesses its teaching, services and programs for evidence of student learning. For this purpose, SLU-Madrid keeps representative examples of student work from all courses and programs on file, including assignments, papers, exams, portfolios and results from student surveys, focus groups and reflective exercises. Copies of your work for this course may be kept on file for institutional research, assessment and accreditation purposes. If you prefer SLU-Madrid not to retain your work for this purpose, you must communicate this decision in writing to your professor.

Required Texts and Materials:

Textbook: Chemistry, by Silberg

Laboratory Manual: General Chemistry 1

COURSE POLICIES**Attendance Policy:**

You are expected to attend all classes. Most students in the past have found the lectures to be helpful. If you absolutely must miss a class, it is your responsibility to get all information and material covered from your fellow students.

Devices: Only calculators are allowed in quizzes and exams, no sharing is allowed. Cell phones should not be brought to exams. Watches are not allowed during exams so do not bring them.

Class Behavior: The difficulty of the subject demands that we show special consideration for one another. Please make every effort to arrive on time. If you must be late or leave early, please close the door quietly and sit near the

exit. Please be courteous of those around you and keep chit chat to a minimum. Cellular phones should be silenced or turned off before lectures begin. On the rare chance you have forgotten and your phone sounds during class, be polite and turn it off immediately. If you are expecting an urgent call, please seat yourself near the exit. Students who are surfing the web, texting or reading the newspaper can be asked to leave.

Privacy —Your grades are confidential information between you and the instructor

Recordings — Students may make audio and/or video recording of the class. When doing so a student is agreeing to the following conditions: (1) the recording is for his/her personal use only while enrolled in the course, and (2) the original and/or modified recording, or portions of it, are not to be posted on Internet sites.

Missed exams: If you miss an exam, contact the Instructor immediately (email is best). Exams that are missed illegitimately result in a score of F. Grades for these students will be based on the remaining exams. Missing more than one exam will result in an F final grade. Only the following are acceptable reasons for being excused from taking an exam at the schedule time:

1. Medical problem (doctors certification required)
2. Serious family emergency (email from Dean of students or Student Counseling Services required)
3. University event (email from Student life is required)

End of Semester Travel Plans: **DO NOT** make plans to leave SLU before the last day of the final exams. Tell your parents **NOT** to make reservations before that date. If plans have already been made, *change them now!!*

Course Requirements and Grading Rationale/System:

First Exam: 20%
Second Exam: 20%
Final Exam: 35%
Quizzes: 15%
Homework: 10%

Grading scale:

| | | | | |
|--------------|--------------|--------------|--------------|--------------|
| 100% <A< 93% | 92% <A-< 90% | 90% <B+< 87% | 86% <B < 83% | 82% <B-< 80% |
| 79% <C+< 77% | 76% <C< 73% | 72% <C-< 70% | 69% <D < 60% | F< 60% |

Course Content:

1. Keys to Studying Chemistry, Matter and Measurement – Chapter 1 & 2
2. Stoichiometry: Calculations with Chemical Formulas and Equations – Chapter 3
3. Chemical Reactions - Chapter 4
4. Gases – Chapter 5
5. Thermochemistry – Chapter 6
6. Quantum Theory and Atomic Structure – Chapter 7
7. Periodic Properties of the Elements – Chapter 8
8. Basic Concepts of Chemical Bonding – Chapter 9
9. Molecular Geometry and Bonding Theories – Chapter 10
10. Liquids and Intermolecular Forces – Chapter 12

| Week | Topic | Chapter |
|---------|---|---------|
| 1 | Keys to Studying Chemistry, Matter and Measurement | 1 & 2 |
| 2 | Keys to Studying Chemistry, Matter and Measurement September 11: no class due to the Mass of the Holy Spirit. | 1 & 2 |
| 3 | Keys to Studying Chemistry, Matter and Measurement | 1 & 2 |
| 3 | Last day to drop without a W and to choose AU or P/NP options Jan 19 | |
| 4 & 5 | Stoichiometry: Calc. with Chemical Formulas & Eq. | 3 |
| 6 | First Exam Feb 10 | |
| 6 | Chemical Reactions | 4 |
| 7 | Gases | 5 |
| 7 | No Class –Feb. 20-21 | |
| 8 | Thermochemistry | 6 |
| 9 | Quantum Theory and Atomic Structure | 7 |
| 10 | Second Exam March 9 | |
| 11 | Last day to Drop a class with a W March 15 | |
| 11 | Quantum Theory and Atomic Structure | 7 |
| 12 | Periodic Properties of the Elements | 8 |
| 13 | Basic Concepts of Chemical Bonding | 9 |
| 14 | No classes – Apr. 6-10 – EASTER BREAK | 10 |
| 15 | Molecular Geometry and Bonding Theories | |
| 16 & 17 | Intermolecular Forces | 12 |
| 18 | FINAL EXAM May 11, at 12:00-15:00 | |

Tentative course outline. Any information on changes regarding the course content will be communicated to students in advance

Quizzes and Homework: Working problems outside of class are an important and expected activity in the mastery of chemistry. Announced and/or impromptu **quizzes** will be given in class **and will count towards your final grade**. Regular **homework assignments** will be given; late homework will not be accepted and will result in a grade of zero for that assignment. These are expected to be a measurement tool for you to chart your progress and to identify your deficiencies and to give you a feel of the upcoming tests. **Homework will count towards your final grade**.

Midterms and the Final Examination: There will be **two midterms** and **one final examination**, spaced approximately equally throughout the semester. As the material in chemistry builds on that which has been previously covered, **each exam will be cumulative from the beginning of the semester** (*i.e.*, Exam #1 covers Chapters 1 - 3, Exam #2 covers Chapters 1 - 7, *etc.*), although the emphasis will be on material presented since the previous midterm. **The final exam is cumulative over material from the entire semester**. The material on the midterms and final examination may be taken from your textbook, lecture notes and/or handouts in class, problems worked in class, quizzes and/or homework assignments.

Examination Dates:

Exam #1 – Monday, Feb. 10th (during class hour)

Exam #2 – Monday, March 9th (during class hour)

Final Exam – Monday, May 11th (12:00-15:00)

E-mail: Campus and course announcements will often be handled by e-mail. Students should check their “@slu.edu” e-mail regularly.

Academic Honesty/Integrity: *Academic integrity is honest, truthful and responsible conduct in all academic endeavors.* The mission of Saint Louis University is “the pursuit of truth for the greater glory of God and for the service of humanity.” Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care, and community service through which SLU fulfills its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The full University-level Academic Integrity Policy can be found on the Provost's Office [website](#). Additionally, SLU-Madrid has posted its academic integrity policy [online](#). As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals.

The professor will review these matters during the first weeks of the term. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

Title IX Statement: Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX deputy coordinator, Patrice Burns, whose office is located on the third floor of San Ignacio Hall, Calle Amapolas, 3 (patrice.burns@slu.edu; 915-54-5858, ext. 241) and share the basic facts of your experience with her. The Title IX deputy coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidential source, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall (counselingcenter-madrid@slu.edu; 915-54-5858, ext. 230) or Sinews Multiplettherapy Institute, the off-campus provider of counseling services for SLU-Madrid (www.sinews.es; 917-00-1979). To view SLU-Madrid's sexual misconduct policy and for resources, please our policy posted online. Additional information is available at the University's website "SLU is here for you."

Disability Accommodations and Learning Resources: In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by reviewing the [Academic Resources website online](#).

Students with a documented disability who wish to request academic accommodations must contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also **must** notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at disabilityservices-madrid@slu.edu or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, see the [Disability Services webpage](#).

Note: Students who do not have a documented disability but who think they may have one are encouraged to contact Disability Services.

Basic Needs Security Statement: Students in personal or academic distress and/or who may be specifically experiencing challenges such as securing food or difficulty navigating campus resources, and who believe this may affect their performance in the course, are encouraged to contact Marta Maruri, SLU-Madrid's Director of Student Life (marta.maruri@slu.edu or 915 54 58 58, ext. 213) for support. Furthermore, please notify the instructor if you are comfortable in doing so, as this will enable them to assist you with finding the resources you may need.

Spring 2020 Course Schedule:

| | |
|---------------------------|--|
| Thursday, January 9 | First day of classes |
| Sunday, January 19 | Last day to drop a class without a grade of W and/or add a class Last day to choose Audit (AU) or Pass/No Pass (P/NP) options |
| Tuesday, January 21 | Academic English first day of classes |
| Sunday, January 26 | Application deadline for spring semester degree candidates |
| Tuesday, February 18 | Last day to submit Transfer Application for spring semester Registration for summer session begins |
| Thursday, February 20 | Winter break (no classes) |
| Friday, February 21 | Winter break (no classes) |
| Wednesday, February 26 | Ash Wednesday |
| Sunday, March 1 | Professors' deadline to submit midterm grades |
| Friday, March 13 | Last day to submit Transfer Application for fall semester |
| Sunday, March 29 | Last day to drop a class and receive a grade of W |
| Friday, April 3 | Academic English last day of class |
| Saturday, April 4 | Semana Santa host family move-out date |
| Monday-Sunday, April 6-12 | Semana Santa (Madrid Campus closed) |

| | |
|------------------------------|--|
| Sunday, April 12 | Easter Day. <i>Semana Santa</i> host family move-in date |
| Wednesday, April 15 | Registration for Fall 2020 begins |
| Friday, May 1 | <i>Día del Trabajador</i> (Madrid Campus closed) |
| Saturday, May 2 | <i>Día de la Comunidad</i> (Madrid Campus closed) |
| Wednesday, May 6 | Last day of classes |
| Thursday-Wednesday, May 7-13 | Final Exams |
| Thursday, May 14 | Commencement Host family housing move-out date |
| Friday, May 15 | <i>Día de San Isidro</i> (Madrid Campus closed) |
| Sunday, May 17 | Professors' deadline to submit final grades |

Final Exam Schedule

| Class Meeting Time | Final Exam Date/Time |
|-------------------------------|---------------------------------------|
| Mondays 8:30, 9 and 9:30 a.m. | Wednesday, May 13, 8:30 to 11:30 a.m. |
| Mondays 10 a.m. | Thursday, May 7, 8:30 to 11:30 a.m. |
| Mondays 11 and 11:30 a.m. | Friday, May 8, 8:30 to 11:30 a.m. |
| Mondays 12 and 12:30 p.m. | Monday, May 11, 12 to 3 p.m. |
| Mondays 1 p.m. | Thursday, May 7, 12 to 3 p.m. |
| Mondays 2 p.m. | Wednesday, May 13, 3:30 to 6:30 p.m. |
| Mondays 3:30 p.m. | Friday, May 8, 3:30 to 6:30 p.m. |
| Mondays 5 p.m. | Tuesday, May 12, 3:30 to 6:30 p.m. |
| Mondays 6:30 and 7 p.m. | Wednesday, May 13, 7 to 10 p.m. |
| Tuesdays 8 a.m. | Tuesday, May 12, 8:30 to 11:30 a.m. |
| Tuesdays 9:30 and 10 a.m. | Monday, May 11, 8:30 to 11:30 a.m. |
| Tuesdays 11 a.m. | Wednesday, May 13, 12 to 3 p.m. |
| Tuesdays 12:30 p.m. | Tuesday, May 12, 12 to 3 p.m. |
| Tuesdays 2 p.m. | Friday, May 8, 12 to 3 p.m. |
| Tuesdays 3:30 and 4 p.m. | Monday, May 11, 3:30 to 6:30 p.m. |
| Tuesdays 5 and 5:30 p.m. | Thursday, May 7, 3:30 to 6:30 p.m. |
| Tuesdays 6:30 p.m. | Thursday, May 7, 7 to 10 p.m. |

Study Hints: You may find that this course requires more work than you have been exposed to in your studies thus far.

However, the material will be manageable if you:

use the text properly, attend all lectures, take notes, study the notes **and** text, work all problems as soon after the lecture as possible and, be prepared (and rested) for exams.

All of this needs to be done day by day. Do not wait until just before an exam to study. You should be studying just about every day rather than trying to cram it all in a couple of days before an exam. Give your brain a chance and the time to learn the material.

This course is comprehensive. There are a number of topics later in the course and in the next semester of the two semester sequence which will require a good understanding of earlier material covered. So, you need to learn material for the long-term rather than just for the exam coming up.

Don't try to depend on just memorization; you'll find that understanding the material will serve you much better in the long run. In this course, you will be expected to have more than just a vague or superficial understanding of the material. Understanding what I do in lecture and what you read is **only** the first step in what you need to do in order to do well in this course. You need to really know the material well and be able to do it yourself. This takes a lot of time and work. You can't just "go over" your notes and/or the text and expect to do well. You must work the problems in the text again and again until you really know it. The more senses you use while studying, the better.

There are some useful reference books available in the library.