

LOS ANGELES MISSION COLLEGE-SPRING 2019
CHEMISTRY 65-SECTIONS 15446, 15448 & 15460
Lecture: TTH 8:55 am-10:20 am ; Room: CMS-028
Lab (15448): T 10:30 am-1:40 pm ; Room: CMS-201
Lab (15460): TH 10:30 am-1:40 pm ; Room: CMS-201

INSTRUCTOR: Said Pazirandeh
WEBSITE: www.profpaz.com
E-MAIL: paziras@lamission.edu

OFFICE PHONE: (818)364-7705
OFFICE: CMS 242
OFFICE HOURS: MT 8:20-8:50 AM
WTH 1:45-2:45 PM
F 12:00-2:30 PM

CLASS DESCRIPTION: Chemistry 65 is an introductory course for science majors who have not taken any previous chemistry or who need a refresher course. It is designed to prepare students who wish to continue to general Chemistry 101. This course may also be taken to satisfy the Physical Science requirement for General Education. Chemistry 65 at LA Mission College is equivalent to Chemistry 100 and Chemistry 100L at CSUN.

PREREQUISITE: Mathematics 125 or 123C (Intermediate Algebra) with a grade of “C” or better.

REQUIRED MATERIALS:

1. **Textbook:** “Introductory Chemistry”, by Nivaldo J. Tro, 6th Edition, ISBN: 9780134557311. See website for detailed information on [textbook choices](#). In this course you will be using **MasteringChemistry**[®], an online tutorial and homework program that accompanies your textbook. To access the online system, you will need an access code that can be obtained in one of the following ways: Student Access Code that has been packaged with your new textbook, or you can purchase access online at www.masteringchemistry.com.
 - A copy of the textbook is available on Reserve in the Library.
2. **Lab Manual:** There is no lab manual available for this course. The information for each lab experiment is available on the class page at www.profpaz.com.
3. **Lab Notebook:** A bound-type carbonless lab notebook is required for your lab. Lab notebook is available at LAMC Bookstore (Item #9781930882744) You must have the Laboratory Notebook by the second class meeting. You are required to report all laboratory work in your Laboratory Notebook. During the Laboratory Activities you are not permitted to take notes on any kind of loose paper or any notebook, other than the Laboratory Notebook. You may not perform an experiment if you do not have your Laboratory Notebook with you.
4. **Periodic Table of Elements:** This is available on my website. You must have one [Periodic Table](#) with you during all class sessions.
5. **Scientific Calculator:** Need not to be an expensive type, but it must perform the following operations: Multiplication, Division, Addition, Subtraction, square root, 1/x, and log. You are required to have your calculator with you during all class sessions (both lectures and labs).
6. **Safety Goggles:** Unless specifically instructed otherwise by your instructor, you must wear safety goggles during laboratory work. Safety goggles are available for purchase in the LAMC Bookstore. You are required to have your safety goggles by the second class session. You may keep your goggles locked in your laboratory locker.
 - Failure to wear goggles when directed by the instructor is grounds for dismissal from the laboratory.
7. **Notebook:** A 3-ring binder is recommended for keeping class notes organized.

**STUDENT
LEARNING
OUTCOMES:**

1. Conceptualize, model and explain chemical processes qualitatively at the molecular level. ([Assessment rubric](#))
2. Apply mathematics to solve quantitative chemical problems. ([Assessment rubric](#))
3. Extract appropriate information, analyze and synthesize experimental results to reach correct conclusions. ([Assessment rubric](#))
4. Perform laboratory techniques safely and accurately and maintain a laboratory notebook according to standard scientific guidelines. ([Assessment rubric](#))

ATTENDANCE:

- CHEMISTRY IS A DEMANDING SUBJECT!
- YOU CANNOT AFFORD TO BE ABSENT IF YOU WISH TO DO WELL IN THIS COURSE.
- THERE IS NO MAKE-UP FOR MISSED LABORATORY WORK.
- College regulations state that a student may be excluded from a course following accumulation absences equal to a week of course work.

**COURSE
EVALUTATION:**

Your final grade in class is composed of the following:

| <u>Assignment</u> | <u>Percentage</u> |
|-----------------------------|-------------------|
| Quizzes (in-class & online) | 10% |
| Exit Tickets | 10% |
| Exams (3) | 30% |
| Final Exam | 15% |
| Lab Exams (2) | 15% |
| Lab Reports | 20% |
| Total | 100% |

**GRADING
SCALE:**

The final grades cutoffs are as follows:

| | |
|---|------------|
| A | 90% - 100% |
| B | 80% - 90% |
| C | 65% - 80% |
| D | 55% - 65% |
| F | Below 55% |

NOTES:

- **No make up** exams are given for students being absent on the day of the exam.
- If serious and compelling reasons prevent the student from being present on the day of one of the exam, the instructor should be informed **IN ADVANCE** for possible arrangements.
- Maximum of one make-up exam and one make-up quiz per semester is allowed.

LABORATORY WORK

- During laboratory work two students will share the contents of the same laboratory locker.
- Both students are jointly responsible for the contents of their shared locker.
- The majority (not all) of the experiments are performed in pairs.
- **For every experiment, each student,**
 - 1. will take active part in the work,**
 - 2. report his/her data individually,**
 - 3. do his/her own calculations,**
 - 4. turn in an individual lab report for grading purposes and**
 - 5. will be assigned an individual grade for every activity.**
- Laboratory Reports are due one week after the class period in which the experiments have been performed (this is to allow working students to meet the deadline).
- **Late reports are subject to a penalty of 10% per week.**
- Once the instructor has returned the graded lab reports to the class, lab reports for that particular experiment are no longer accepted for grading.
- In order to work efficiently and meet the required deadline for turning in the lab reports, **you must come** to the laboratory well prepared.
- **This means:**
 - 1. Read carefully (several times, if needed) the Experiment you will perform (both Principles and Procedure) prior to coming to the lab.**
 - 2. Think about what will be doing and plan ahead.**
 - 3. Prepare your Laboratory Notebook in advance (Purpose of the Experiment, Procedure, and the appropriate Data Tables should be prepared in your Lab Notebook in advance).**

THERE IS NO MAKE-UP LABORATORY WORK

INSTRUCTIONS FOR LABORATORY NOTEBOOK

Each student must have a **spiral bound copy (bottom page) perforated** Laboratory Notebook (50 pages) in which to record data and observations, do calculations, and analyze results of the lab work.

The Lab Notebook must be brought with you to every lab session and all data and observations must be recorded **directly into the Notebook** (no where else) **and in ink** (no pencil). Laboratory records are legal documents in industry and research. They are required to support patent applications or to resolve disputes or originality of research.

The laboratory notebook is a permanent record of all work performed in the laboratory. It is the place where a scientist records all of his or her data, measurements, and observations for future reference. In an academic setting the lab notebook is the storehouse for all information the researcher will use to write articles for scientific journals. In an industrial setting the lab notebook is not only a record of the experiment. It is a legal document that may be critical for obtaining a patent. It should contain enough information so that another scientist could read the notebook and repeat the experiment.

One of the most critical skill that you must learn is to neatly record all your measurements and observations directly in your lab notebook at the actual time you make them. It is improper to scribble data on a loose sheet of paper or to rely on your memory to preserve your observations. Learning to keep complete, reliable records is an important part of learning how to become a good scientist. Here is some general information about keeping a lab notebook and also some information about the specific sections you should have for each experiment.

General Information

- Your notebook must be bound, having duplicate style sheet. Do not remove original pages from the notebook.
- Write your name, Chemistry 65, your lab section, and semester on the inside front cover.
- Write only on the front side of each white sheet. A duplicate copy will automatically appear on the yellow/blue sheet behind it. Apply sufficient pressure to make a legible copy, but not so much that the writing appears on the next pair of sheets. Remember to place the cardboard between each pair of sheets.
- Unless your lab notebook has a table of contents, reserve the first two pages for a table of contents.
- All entries in your lab notebook must be made in permanent ink. If you make an error, do not attempt to erase it or use a whiteout. Just draw a single line through the incorrect entry.
- Learn to write in the **past tense**, third person (without the use of personal pronouns such as I, we, and my).

Sections of the Notebook For Each Experiment

Title. Begin each new experiment on a blank page. Put the full title of an experiment on top of that page. (Write the same title in your table of contents along with the starting page number).

Objectives. Under the title, list the specific objective(s) for the experiment in concise statement(s). Write a short statement (one or two sentences, in your own words) of the purpose or the goal of the experiment. If the experiment contains more than one part, indicate objective of all parts of the experiment.

Procedure & Data. Procedure should be a brief outline of each step in the experiment, including amounts of each reagent used, size of glassware, and equipment(s) used. Leave space between each step of the procedure to record the appropriate data next to it. Use only the left column of the notebook.

Right column will be used for observations and data to be recorded. You can use the Report Form available for each experiment and include pertinent data tables and other information in this section.

****NOTE.** *The three sections above must be completed before your come in to the lab (no lab will be started unless the following sections are completed).*

Observations and Measurements. You should also record observations of everything that happens during the experiment as it happens using right column of the notebook. Especially pay attention to any change in color, the amount of time it takes for a reaction to occur, unexpected occurrences, temperature readings, amount of solvent used in the experiment, etc. Also write down any modifications you make to the procedure in this section.

All numerical data should be recorded directly in the notebook with the proper significant figures and units. Any data recorded on another piece of paper, such as chromatogram, should be permanently attached into the notebook as instructed.

Calculations & Results. All sample calculations must be shown in the notebook, including the subtracting of masses to find the mass of a sample, the use of density to convert between mass and volume, the use of molecular weight (or molar mass) to convert between mass and moles, etc. Your calculation section must include an equation, substitution and answer with significant figures and units. Summarize experimental findings in a tabulated format with correct significant figures and appropriate units.

Questions and Problems. Answer questions and problems at the end of each Report Form.

TENTATIVE LECTURE SCHEDULE

| Week | Date | Chapter | Lecture Topic | Text Reference |
|------|---------------------------|--------------|---|------------------|
| 1 | Feb 5 | 1 | Introduction to class; What is Chemistry/Scientific Method | 1.2-1.4 |
| | Feb 7 | 2 | Scientific Notation; Significant Figures | 2.2-2.4 |
| 2 | Feb 12 | 2 | SI Units; Unit Conversions & Problem Solving | 2.5-2.9 |
| | Feb 14 <i>Feb 18</i> | 3 --- | Classification & Properties of Matter <i>Last day to drop without a "W" (online only)</i> | 3.2-3.6 |
| 3 | Feb 19 | 3 | Matter & Energy | 3.7-3.12 |
| | Feb 21 | 4 | Atomic Theory & Structure; Intro to Periodic Table | 4.2-4.6 |
| 4 | Feb 26 | ----- | Test 1 (Chap 1-3) | ----- |
| | Feb 28 | 4 | Ions; Isotopes; Atomic Mass | 4.7-4.9 |
| 5 | Mar 5 | 5 | Compounds & Their Properties; Chemical Formulas | 5.1-5.3 |
| | Mar 7 | 5 | Writing Formula for Ionic Compounds | 5.4-5.5 |
| 6 | Mar 12 | 5 | Naming Ionic & Molecular Compounds; Formula Mass | 5.6-5.11 |
| | Mar 14 | 6 | Mole Calculations | 6.2-6.5 |
| 7 | Mar 19 | 6 | Percent Composition; Empirical & Molecular Formulas | 6.6-6.9 |
| | Mar 21 | ----- | Review for Test 2 | ----- |
| 8 | March 26 | ----- | Test 2 (Chap 4-6) | ----- |
| | Mar 28 | ----- | Non-Instructional Day | ----- |
| 9 | April 1-7 | ----- | Spring Break (College closed) | ----- |
| 10 | April 9 | 7 | Chemical Reactions; Balancing Equations | 7.2-7.4, 7.10 |
| | April 11 | 7 | Aqueous Solutions; Precipitation Reactions | 7.5-7.7 |
| 11 | April 16 | 7 | Neutralization & Redox Reactions | 7.8-7.9 |
| | April 28 | 8 | Stoichiometry; Limiting Reactant | 8.2-8.5 |
| 12 | April 23 | 8 | Percent Yield; Energy & Chemical Reactions Review for Test 3 | 8.6-8.7 |
| | April 25 | ----- | Test 3 (Chap 7-8) | ----- |
| 13 | April 30 | 9 | Modern Atomic Theory; Orbitals | 9.2-9.6 |
| | May 2 <i>May 5</i> | 9 ---- | Electron Configuration; Periodic Properties <i>Last day to drop with a "W" (online only)</i> | 9.7-9.9 ----- |
| 14 | May 7 | 10 | Lewis Structures; Molecular Shapes | 10.2-10.7 |
| | May 9 | 10 | Electronegativity & Polarity | 10.8 |
| 15 | May 14 | 11 | Gases & Their Properties; Gas Laws | 11.2-11.6 |
| | May 16 | 11 | Ideal Gas Law; Gases in Reactions | 11.7-11.10 |
| 16 | May 21 | 13 | Solution Properties; Concentrations | 13.2-13.6 |
| | May 23 | 13 | Dilution; Solution Stoichiometry | 13.7-13.8 |
| 17 | May 28 (10-12) | ----- | Final Exam (Chapters 9-13) | ----- |

TENTATIVE LABORATORY SCHEDULE

| Week | Date | Exp. # | Activity |
|------|------------------|--------------|---|
| 1 | Feb 5 | ----- | Introduction to Lab; Safety Video Check-in; Guidelines for Preparation of Lab Notebook |
| | Feb 7 | | |
| 2 | Feb 12 | 1 | Physical and Chemical Changes |
| | Feb 14 | | |
| 3 | Feb 19 | 2 | Measurements |
| | Feb 21 | | |
| 4 | Feb 26 | 3 | Density |
| | Feb 28 | | |
| 5 | Mar 5 | 5 | Separations Experiment |
| | Mar 7 | | |
| 6 | Mar 12 | ---- | Laboratory Exam #1 (Exp. 1-5) |
| | Mar 14 | | |
| 7 | Mar 19 | 6 | Paper Chromatography |
| | Mar 21 | | |
| 8 | March 26 | ----- | TBD Non-Instructional Day |
| | Mar 28 | | |
| 9 | April 1-7 | ----- | Spring Break (College closed) |
| 10 | April 9 | 11 | Formula of a Hydrate |
| | April 11 | | |
| 11 | April 16 | 12 | Ionic Reactions |
| | April 28 | | |
| 12 | April 23 | 14 | Synthesis of NaCl from Soda Ash |
| | April 25 | | |
| 13 | April 30 | 19 | Specific Heat Capacity |
| | May 2 | | |
| 14 | May 7 | 15 | Molecular Shape & Polarity |
| | May 9 | | |
| 15 | May 14 | 21 | Determining Concentration of Acetic Acid in Vinegar |
| | May 16 | | |
| 16 | May 21 | ----- | Check-out Lab Final Exam (Remainder of Experiments) |
| | May 23 | | |