

LOS ANGELES MISSION COLLEGE

CHEMISTRY 65 - SUMMER 2019

Lecture (11364): MTWTh 10:40 AM-12:05 PM ; Room: CMS-028

Lab (11366): MTWTh 12:35 pm-2:00 pm ; Room: CMS-201

Lab (11370): MTWTh 12:35 pm-2:00 pm ; Room: CMS-210

INSTRUCTOR (11364/11370): Mike Fenton

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OFFICE HOURS: By Appointment

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TEACHING ASSISTANT: Moises Carrillo

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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, 5th Edition, ISBN: 9780321910073. See website for detailed information on [textbook choices](#).
 - 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. Your lab instructor will provide more information about this in the lab. 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.

RESOURCES: There are several resources available for your use during this course. Proper and timely utilization of these resources are very important in your success in the course. These resources include:

- [Profpaz](#) website
- Tutoring

Summer Library Hours:

Session A (6/15-7/3): Monday through Thursday 9 am-3 pm

Session B (7/20 -8/20): Monday: 9 am-3 pm Wednesday: 11 am-5 pm

**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:

Exams (3)	300 pts
Final Exam	150 pts
Lab Exams (2)	200 pts
<u>Lab Reports</u>	<u>200 pts</u>
Total	850 points

**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 exams, 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. Procedure should be written in the past tense and third person, including amounts of each reagent used, size of glassware, and equipment(s) used. You may write this either as a paragraph or by numerical order. Use only the left column of the notebook. Right column will be used for observations and data to be recorded.

****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.

Conclusion. The conclusion section should include a restatement of what was accomplished in the experiment, a summary of the results, and an analysis of these results. If the results are different from what you expected, discuss possible sources of error.

Questions and Problems. Answer questions and problems assigned either from laboratory manual or provided by your instructor.

TENTATIVE LECTURE SCHEDULE

Week	Date	Chapter	Lecture Topic	Text Reference
1	June 10	1	Introduction to class; What is Chemistry/Scientific Method	1.2-1.4
	June 11	2	Scientific Notation; Significant Figures	2.2-2.4
	June 12	2	SI Units; Unit Conversions & Problem Solving	2.5-2.9
	June 13	3	Classification & Properties of Matter	3.2-3.6
2	June 17	3	Matter & Energy/ Review for Test 1 <i>Last day to drop without a "W"</i>	3.7-3.12
	June 18	4	Atomic Theory & Structure; Introduction to Periodic Table	4.2-4.6
	June 19	-----	Test 1 (Chap 1-3)	-----
	June 20	4	Ions; Isotopes; Atomic Mass	4.7-4.9
3	June 24	5	Compounds & Their Properties; Chemical Formulas	5.1-5.4
	June 25	5	Ionic & Covalent Compounds – Naming and Writing Formulas; Naming Acids	5.5-5.9
	June 26	5-6	Formula Mass; Mole Calculations	5.11, 6.2-6.5
	June 27	6	Percent Composition; Empirical & Molecular Formulas	6.6-6.9
4	July 1	7	Chemical Reactions; Balancing Equations	7.2-7.4, 7.10
	July 2	7	Aqueous Solutions; Precipitation Reactions	7.5-7.7
	July 3	7	Neutralization & Redox Reactions	7.8-7.9

	July 4	-----	Independence Day (Holiday – No Class)	-----
5	July 8	-----	Test 2 (Chap 4-6)	-----
	July 9	8	Stoichiometry; Limiting Reactant	8.2-8.5
	July 10	8	Percent Yield; Energy & Chemical Reactions	8.6-8.7
	July 11	9	Modern Atomic Theory; Orbitals	9.2-9.6
6	July 15	9	Electron Configuration; Periodic Properties	9.7-9.9
	July 16	-----	Review for Test 3	-----
	July 17	-----	Test 3 (Chap 7-8)	-----
	July 18 July 19	10 ----	Lewis Structures; Molecular Shapes <i>Last day to drop with a “W”</i>	10.2-10.7 -----
7	July 22	10	Electronegativity & Polarity	10.8
	July 23	13	Solution Properties; Concentrations	13.2-13.6
	July 24	13	Dilution; Solution Stoichiometry	13.7-13.8
	July 25	11	Gases & Their Properties; Gas Laws	11.2-11.6
8	July 29	11	Ideal Gas Law; Gases in Reactions	11.7-11.10
	July 30	12	Phase Changes; Intermolecular Forces	12.4-12.6
	July 31	-----	Review for Final Exam	-----
	Aug 1	-----	Final Exam (Chapters 9-13)	-----

LABORATORY SCHEDULE

Week	Date	Exp. #	Activity	Points
1	June 10	-----	Introduction to Lab; Safety Video Guidelines for Preparation of Lab Notebook	-----
	June 11	-----	Check-in; Using Balances	-----
	June 12	1	Physical and Chemical Changes	15
	June 13	1	Physical and Chemical Changes (cont'd)	----
2	June 17	2	Measurements	15
	June 18	2	Measurements (cont'd)	----
	June 19	3	Density	20
	June 20	3	Density (cont'd)	----
3	June 24	5	Separations Experiment	20
	June 25	5	Separations Experiment (cont'd)	----
	June 26	6	Paper Chromatography	15
	June 27	6	Paper Chromatography (cont'd)	----
4	July 1	----	Lecture	----
	July 2	----	Lecture	----
	July 3	----	Make-up	----
	July 4	----	Independence Day (Holiday – No Class)	----
5	July 8	11	Formula of a Hydrate	20
	July 9	11	Formula of a Hydrate (cont'd)	----
	July 10	----	Nomenclature & Empirical Formula Worksheets	----
	July 11	----	Laboratory Exam #1 (Exp. 1-3, 5, & 6)	100
6	July 15	12	Ionic Reactions	20
	July 16	12	Ionic Reactions (cont'd)	----
	July 17	14	Synthesis of NaCl from Soda Ash	20
	July 18	14	Synthesis of NaCl from Soda Ash (cont'd)	----
7	July 22	19	Specific Heat Capacity	20
	July 23	19	Specific Heat Capacity (cont'd)	----
	July 24	15	Molecular Shape & Polarity	15
	July 25	15	Molecular Shape & Polarity (cont'd)	----
8	July 29	21	Determining Concentration of Acetic Acid In Vinegar	20
	July 30	21	Determining Concentration of Acetic Acid In Vinegar (cont'd)	-----
	July 31	----	Lab Final Exam (11, 12, 14, 15, 19, 21, & Worksheets)	100
	Aug 1	----	Check out	----