

**LOS ANGELES MISSION COLLEGE-FALL 2018**  
**CHEMISTRY 101-SECTION 16481 & 16496 OR 21503**  
**LEC: TTH 5:15-6:40 PM (CMS-236)**  
**LAB (16496): TTH 1:50-5:00 PM (CMS-210)**  
**LAB (21503): TTH 6:50-10:00 PM (CMS-210)**

**INSTRUCTOR (LEC & LAB 16496):** Said Pazirandeh  
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**OFFICE:** CMS 242  
**OFFICE HOURS:** MW 10:30 AM-11:30 AM  
F 10:00 AM-1:30 PM

**INSTRUCTOR (Lab 21503) :** Anjum Qureshi  
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**OFFICE:** CMS 237  
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1. **PREREQUISITES:**

- Chemistry 65 with a grade of C or better.
- Mathematics 125 (Intermediate Algebra) with a grade of C or better

2. **TEXTBOOK:**

- Required: “**Chemistry: A Molecular Approach**”, Nivaldo Tro (4<sup>th</sup> Custom Ed; ISBN 978-1-323-44796-3)
- Copy of the Textbook will be available on Reserve in the Library.
- See helpful hints for [selecting textbook](#) available on profpaz.com.

3. **LABORATORY MANUAL:**

- Required: “**Chemistry in the Laboratory**” by J. M. Postma, (7<sup>th</sup> Edition; ISBN 1-4292-1954-8)  
**You are required to have your lab manual by the 2<sup>nd</sup> class meeting.**

4. **LABORATORY NOTEBOOK:**

- Required: A bound type carbon-less notebook (available in LAMC bookstore; item # 978-1-930882-74-4).  
**You are required to have your laboratory notebook by the 2<sup>nd</sup> class meeting.**
- You are required to report all laboratory work in your laboratory notebook. Your lab instructor will provide more information on the requirements for maintaining this lab notebook.

5. **SCIENTIFIC CALCULATOR**

- Need not to be an expensive type, but it must perform the following operations: Addition, Subtraction, Multiplication, Division, Square Root, 1/x, and Logarithms.
- You are required to have your calculator with you for all class sessions (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.
- **While in the laboratory, students must wear safety goggles at all times, unless otherwise directed by the instructor. Failure to wear goggles unless directed by the instructor is grounds for dismissal from the lab.**

7. **PERIODIC TABLE OF THE ELEMENTS**

- You are required to have your own Periodic Table of the Elements with you, for all class sessions.
- The particular type of [Periodic Table](#) used for this course is available online at my website.

## STUDENT LEARNING OUTCOMES

1. Describe, explain and model chemical and physical processes qualitatively at the molecular level in order to explain macroscopic properties. ([Assessment rubric](#))
2. Solve quantitative chemistry problems through integration of multiple ideas and demonstrate reasoning clearly and completely. ([Assessment rubric](#))
3. Perform laboratory techniques safely and accurately, analyze results of laboratory experiments, evaluate sources of errors, and use laboratory notebook to write formal laboratory report following standard scientific guidelines. ([Assessment rubric](#))

## GRADING SCALE

- Your grade in the class is composed of the following components:

<i>ASSIGNMENT</i>	<i>% OF TOTAL</i>	<i>ASSIGNMENT</i>	<i>% OF TOTAL</i>
<b>QUIZZES</b>	<b>10</b>	<b>LABORATORY REPORTS &amp; UNKNOWNNS</b>	<b>20</b>
<b>EXIT TICKETS</b>	<b>10</b>	<b>PRE LAB QUIZZES</b>	<b>10</b>
<b>TESTS (2)</b>	<b>30</b>	<b>LAB FINAL EXAM</b>	<b>5</b>
<b>FINAL EXAM</b>	<b>15</b>		
<b>LECTURE TOTAL</b>	<b>65 %</b>	<b>LAB TOTAL</b>	<b>35 %</b>

- The grading scale in the class is as follows:

A	90% – 100%	D	55% – 65%
B	80% – 90%	F	less than 55%
C	65% – 80%		

- NOTES:**
- **Exit Tickets** are worksheets that are handed out after each lesson to provide practice and assessment of your knowledge on the topic discussed. They are due the 2<sup>nd</sup> class meeting after distribution. No late Exit Tickets are accepted.
  - In order to conserve lecture time, some of the quizzes will be given during the scheduled laboratory session.
  - **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 are allowed.

## LABORATORY WORK

Laboratory work is an established part of courses in chemistry at college and universities. Laboratory work allows students to develop their skills in the following areas:

- **Practical skills:** e.g. safety, hazards & risk assessment; procedures, instruments, observation of methods.
- **Transferable skills:** e.g. team working, organization, time management, communication.
- **Intellectual stimulation:** e.g. connections with the ‘real world’, raising enthusiasm for chemistry.

In this course, in the laboratory, you will work with another classmate as a “team” by sharing locker and equipment and collaborating on experimental work. Each group is expected to keep the contents of their lockers clean and undamaged, and will check out at the end of the semester. Damaged and missing equipment must be accounted for and will be replaced by the stockroom without any charge to the student.

- For each experiment performed, each member of the group is expected to
  - **take active part in the work,**
  - **record his/her data individually,**
  - **do his/her own calculations,**
  - **turn in an individual lab report for grading purposes**
- Laboratory Reports are due one week after the class period in which the experiments have been performed. **Late reports are subject to a penalty, as deemed appropriate by the lab instructor.**
- 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. Periodic pre-lab quizzes are given to assess your preparation and basic knowledge of the experiments at the beginning of some lab periods.
- There is no make-up allowed for laboratory work. If you are absent during an experiment, speak with the instructor to see if a report with your classmate’s data will be accepted for a prorated grade.



## **THE WHYs, WHATs AND HOWs OF LABORATORY NOTEBOOK**

Each student is expected to keep a laboratory notebook to record data and keep experimental results in the laboratory. The notebook required is a carbon-less notebook that produces copies of recorded work automatically.

### **Why?**

Keeping a laboratory notebook develops skills on how to collect, record and organize observations and other related information in a chemistry class. These skills are highly regarded in industry and academic laboratories as scientists and researchers are expected to accurately and properly record their observations, results and discoveries for proper credit for intellectual property and rights.

### **What?**

A laboratory notebook is a personal record of your work in your chemistry class, and can therefore be somewhat different than other student's notebooks in the class. However, every student's notebook should have the following information within its content:

- Title of Experiment
- Objective or Purpose
- Summary of Procedure or a reference to it.
- Data & Observation
- Results and Calculations
- Answers to Questions and Problems assigned for the experiment

As mentioned above, while the style of your lab notebook might be different from the other students in the class, all notebooks must contain the critical information indicated above to properly document the results of the experiment. For some samples of lab notebook styles, see "[Guide to Preparing Your Lab Notebook](#)" on profpaz website.

### **How?**

Learning how to keep a proper lab notebook in chemistry class is a process that will improve as you progress in this and other chemistry classes. To be successful,

- Follow all directions provided by your lab instructor.
- Read experiments prior to coming to lab and attempt to prepare some of your lab notebook prior to your class. This prelab preparation can include: Title, Purpose and Procedure or reference to it.
- Follow the [Do's and Don'ts](#) of preparing lab notebook.
- Use your instructor's feedback (verbal or written) to improve your skills for future experiments.

## TENTATIVE LECTURE SCHEDULE\*

Week	Date	Text Reference	Topic
1	Aug 28	1.2-1.5	Introduction to class – Review of Introductory Chemistry
	Aug 30	1.6-1.8	Review of Introductory Chemistry (cont'd)
2	Sep 4	2.3-2.9	Review of Introductory Chemistry (cont'd)
	Sep 6	3.2-3.7	Classification of Compounds/Nomenclature
3	Sep 11	3.7-3.10	Composition of Compounds/Combustion Analysis
	Sep 13	3.11; 4.2	Writing & Balancing Equations/Stoichiometry
4	Sep 18	4.2-4.3	Stoichiometry/Limiting Reactant & % Yield
	Sep 20	4.4-4.8	Concentration & Solution Stoichiometry/Aqueous Reactions
5	Sep 25	4.9	Redox Reactions/Half-Reactions/Balancing Redox Rxns
	Sep 27	5.2-5.5	Simple Gas Laws/Ideal Gas Law & Its Applications
6	Oct 2	5.6-5.7	Mixture of Gases/Gases in Chemical Reactions
	Oct 4	5.8-5.10	Kinetic Molecular Theory/Real Gases
7	Oct 9	6.2-6.5	1 <sup>st</sup> Law of Thermodynamics/Calculating Heat & Work
	<b>Oct 11</b>	<b>-----</b>	<b>Test 1 (Chapters 3-5)</b>
8	Oct 16	6.6-6.7	Thermochemical Equations/Constant Volume Calorimetry
	Oct 18	6.8-6.9	Constant Pressure Calorimetry/Std Enthalpies of Formation
9	Oct 23	7.2-7.4	Light, Waves and Energy/ Bohr's Model of Atom
	Oct 25	7.5-7.6	Quantum Mechanics Theory & Atomic Orbitals
10	Oct 30	-----	Video-Quantum Theory
	Nov 1	8.2-8.4	Electron Configuration
11	Nov 6	8.5-8.9	Periodic Properties
	Nov 8	9.2-9.4	Ionic Bonding/Lattice Energy & Born-Haber Cycle
12	Nov 13	9.5-9.8	Covalent Bonding/Lewis Structures/Resonance
	<b>Nov 15</b>	<b>-----</b>	<b>Test 2-Chapters 6-8</b>
13	Nov 20	9.9-9.10	Exceptions to Octet Rule/Bond Energies
	<b>Nov 22</b>	<b>-----</b>	<b>Thanksgiving Holiday (College closed)</b>
14	Nov 27	10.6-10.7	VB Theory/Hybridization of Atomic Orbitals
	Nov 29	13.4-13.5	Factors Affecting Solubility/Solution Concentrations
15	Dec 4	13.6	Colligative Properties of Non-Electrolytes
	Dec 6	13.7	Colligative Properties of Strong Electrolytes
16	<b>Dec 13 (5:30-7:30)</b>	<b>-----</b>	<b>FINAL EXAM (Chapters 9-12)</b>

*\* This schedule is tentative and subject to change, based on instructor's discretion, as the class progresses.*

## TENTATIVE LABORATORY SCHEDULE\*

Week	Date	Experiment No.	Experiment Title
1	Aug 28	-----	Introduction to Lab Procedure & Policies/Check-in
	Aug 30	1	Scientific Measurements
2	Sep 4	2	Mass & Volume Relationships
	Sep 6	4	Reactions of Household Chemicals
3	Sep 11	5	A Cycle of Copper Reactions
	Sep 13	5	A Cycle of Copper Reactions (cont'd)
4	Sep 18	8	Determination of a Chemical Formula
	Sep 20	8	Determination of a Chemical Formula (cont'd)
5	Sep 25	9	Determination of a Chemical Formula by Titration
	Sep 27	Handout A	Net Ionic Equations
6	Oct 2	-----	Complete reports for experiments 8 & 9
	Oct 4	7	Chemistry of Oxygen
7	Oct 9	Afternoon lab	Prelab Discussion for Exp 13
		Evening lab	Review for lecture Test 1
	Oct 11	Afternoon lab	Review for lecture Test 1
		Evening lab	Prelab Discussion for Exp 13
8	Oct 16	13	Reactivity of Metals with HCl
	Oct 18	14	Heat Capacity of Metals
9	Oct 23	15	Prelab Discussion for Exp 15
	Oct 25	15	Enthalpy Changes in Chemical Reactions
10	Oct 30	Handout C	Standardization of Base and Titration of an Unknown Acid
	Nov 1	Handout C	Standardization of Base and Titration of an Unk Acid (cont'd)
11	Nov 6	17	Prelab Discussion for Exp 17
	Nov 8	17	Emission Spectra for Hydrogen Atom
12	Nov 13	18	Ionic and Covalent Bonding
	Nov 15	Handout D	Lewis Structures and Resonance Handout
13	Nov 20	10.2-10.5	Lecture - Molecular Shapes & Polarity
	<b>Nov 22</b>	<b>-----</b>	<b>Thanksgiving Holiday (College closed)</b>
14	Nov 27	22	Colligative Properties (Prelab Discussion)
	Nov 29	22	Colligative Properties
15	Dec 4	-----	Check-Out
	Dec 6	<b>-----</b>	<b>Lab Final Exam (Practicum)</b>

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