

LOS ANGELES MISSION COLLEGE-SPRING 2012

CHEMISTRY 101-SEC. 0152

Lecture: MW 8:25-10:30 – Room: INST – 2003

Laboratory: MW 10:40–1:05 – Room INST-2012

INSTRUCTOR: Dr. Mike Fenton

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OFFICE & PHONE: INST. #22 & EXT. 7888

OFFICE HOURS: W 2:00 - 4:30 PM

TH 12:00 – 3:00 PM

1. PREREQUISITES:

- (a) Any college level Introductory Chemistry Course with a grade of C or better.
A high school Chemistry course does not satisfy this requirement unless the student earns a satisfactory grade on Chemistry Readiness Exam administered by the Physical Sciences Department at Los Angeles Mission College.
Contact Said Pazirandeh or Mike Fenton if you wish to set up an appointment to take the Chemistry Readiness Exam.
- (b) Mathematics 125 (Intermediate Algebra) with a grade of C or better

2. RECOMMENDED:

Concurrent enrollment in MATH 240 (Trigonometry) or MATH 260 (Pre-Calculus). This is especially important if you intend to enroll next semester in Chemistry 102 and/or Physics 6

3. TEXTBOOK:

- (a) Required: “**General Chemistry**” by Ebbing, Houghton-Mifflin ,**9th edition**
- (b) Optional: “**General Chemistry - Study Guide for General Chemistry**” by Bookin, Houghton-Mifflin, **8th edition**
A copy of the study guide is available in the Library for reference use.

Lecture Notes

For Lecture notes go to www.profpaz.com

Practice Tests are available at www.profpaz.com

4. LABORATORY MANUAL: Applied Chemistry (2007) Edited by Charles Mallory

Required: The laboratory manual is available online. See link on www.profpaz.com

You are required to have your laboratory manual by the 2nd class meeting.

5. LABORATORY NOTEBOOK:

Required: This is a **quadrille paper**, hard cover “Comp Book”, available in the L.A.M.C. Bookstore and in the C.S.U.N. Bookstore. You are required to have your laboratory manual by the 2nd class meeting.

You are required to report all laboratory work in your Laboratory Notebook.

6. 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 log.

You are required to have your calculator with you for all class sessions (lectures and labs).

7. SAFETY GOGGLES

Unless specifically instructed otherwise by your instructor, you are required wear safety goggles at all times during laboratory work.

You are required to purchase your own safety goggles and you may wish to keep them in your laboratory locker.

You are required to have your safety goggles by the 2nd class meeting

Approved safety goggles are available in the L.A.M.C. Bookstore and in the C.S.U.N. Bookstore.

8. PERIODIC TABLE OF THE ELEMENTS

You are required to have your own Periodic Table of the Elements with you, for all class sessions.

9. 100 % ATTENDANCE

CHEMISTRY 101 is a demanding course!

IF YOU WISH TO DO WELL IN THIS CLASS, YOU CANNOT AFFORD TO BE ABSENT!

**WELCOME TO CHEMISTRY 101 AT LOS ANGELES MISSION COLLEGE!
LET US WORK TOGETHER TOWARD YOUR ENJOYABLE AND SUCCESSFUL LEARNING EXPERIENCE!**

HOW TO SURVIVE AND EVEN EXCEL IN CHEMISTRY 101

- **Chemistry 101 is a demanding course.** It demands much time due to the sheer volume of work you must process for laboratory and lecture. It demands much effort to understand and learn the many new concepts presented in the course. **You can** have a successful, even interesting semester if you practice some of the following hints.
- **Work on chemistry every day.** Do just 2 or 3 problems or read just a few sections of the current chapter. You will often need to try a problem several times before you fully understand it. You will need to read the text several times before you really know the material.
- **You cannot cram Chemistry! Don't try!** Try to stay ahead of lecture. Skim the anticipated lecture topic the day before class. Then you know what is in the book and need not take so many notes. You then can **listen and think during lecture**. Carefully read the examples and solved problems in the text. Cover the author's solution and work them yourself immediately after reading the text. Do the suggested end-of -chapter problems. You cannot solve test problems quickly and efficiently without **lots of practice**. If you cannot solve a suggested problem, or don't understand it, reread the appropriate section in the text and review your lecture notes. Look for a similar problem among the text's examples. Think about it for several days.
- **Ask for help** to get started from your instructor, a tutor, or a fellow student.
- **Look for connections** between the current lecture topic and previous topics or your prior knowledge of chemistry or physics. Look for practical applications of what you are learning.
- **Finally, don't panic.** Take the course one step at a time and let your understanding grow. You will be amazed at how much material you have assimilated by semester's end.

STUDENT LEARNING OUTCOMES (SLO)

1. **Describe, explain and model chemical and physical processes qualitatively at the molecular level in order to explain macroscopic properties.**
2. **Solve quantitative chemistry problems through integration of multiple ideas and demonstrate reasoning clearly and completely.**
3. **Analyze results of laboratory experiments, evaluate sources of error and prepare clear and organized laboratory reports.**
4. **Perform laboratory techniques safely and accurately and maintain a laboratory notebook according to standard scientific guidelines.**
5. **Design, construct and interpret graphs accurately.**

Resources

ME!!! I am your number one resource.

www.profpaz.com → This site has all of the lectures, lab manual, practice exams, and many other resources that will assist you through the material in this course.

LAMC Chem 101 on FACEBOOK → I will post course material, answer questions and place Chem 101 related information (websites, pictures, and videos) to enhance your educational experience. Also, this provides a forum for student:professor and student:student interaction. I encourage students to answer questions for their peers. Log on to facebook → search for LAMC Chem101 and add.

Science Success Center: Laboratories for Learning, Writing, Math & Science. Walk-in and appointment services offered. Call 818-364-7754 or visit www.lamission.edu/learningcenter

TENTATIVE LECTURE OUTLINE

Week	Date	Chapter	Topic
1	Feb. 6 Feb.8	1 1	Introduction to class-Chemistry and Scientific method Measurement and Error
2	Feb. 13 Feb. 15	2 2	Atomic Model and Structure Chemical Nomenclature
3	Feb. 20 Feb.22	--- 3	President's Day (College closed) Introduction to Mole/Chemical Calculations
4	Feb. 27 Feb. 29 Mar. 4	3 --- ---	Stoichiometry Review for Test #1 Last day to drop without a "W"
5	Mar. 5 Mar. 7	--- 4	Test #1(Chapters 1,2,& 3) Ionic Reactions
6	Mar. 12 Mar. 14	4 4	Double Displacement Reactions Redox Reactions
7	Mar. 19 Mar. 21	5 5	The Gas Laws Kinetic-Molecular Theory
8	Mar. 26 Mar. 28	--- 6	Test #2 (Chapters 4 and 5) Thermochemistry
9	Apr. 2-9	----	Spring Break
10	Apr. 9 Apr. 11	---- 6	Spring Break (con'd) Thermochemistry (con'd)
11	Apr. 16 Apr. 18	7 7	Quantum Mechanical Model of the Atom Atomic Orbitals
12	Apr. 23 Apr. 25	8 8	Electron Configuration Periodic Properties
13	Apr. 30 May 2 May 6	--- 9 ---	Test #3 (Chapters 6,7, & 8) Ionic and Covalent Bonds Last day to drop with a "W"
14	May 7 May 9	9 10	Lewis Structures Bonding and Molecular Polarities, Molecular Geometry
15	May 14 May 16	10 11	Hybrid Orbitals and Molecular Orbital Theory Changes of States/Liquids & Solids
16	May 21 May 23	12 12	Solution Concentrations Colligative Properties
	Jun. 4 (7:30-9:30am)	---	Final Exam (Chapters 9,10,11,& 12)

Optional: ASSIGNED PROBLEMS (Ebbing, 9th Ed)

List of assigned problems listed by chapters. Solving these and additional problems is highly recommended and constitutes the best preparation for the course. It is your responsibility to know how to solve these problems and others similar to them.

Chapter 1	1.7,1.9,1.12,1.16,1.22,1.41, 1.42, 1.44,1.46, 1.48, 1.54, 1.57,1.58,1.61,1.62, 1.69,1.70, 1.73- 1.80, 1.1091.110, 1.133,1.134,1.139
Chapter 2	2.1, 2.6, 2.7, 2.13, 2.16, 2.17, 2.21, 2.22, 2.23, 2.57, 2.58, 2.59, 2.60, 2.61, 2.62, 2.75-2.86, 2.97, 2.98, 2.125, 2.126
Chapter 3	3.13, 3.14, 3.15, 3.16, 3.28, 3.34, 3.38, 3.42, 3.46, 3.57, 3.65, 3.66, 3.69, 3.75 , 3.76, 3.79,3.80,3.81, 3.82, 3.84, 3.91,3.92,3.107, 3.110, 3.112
Chapter 4	4.2, 4.3, 4.5, 4.10, 4.11, 4.15, 4.17, 4.18, 4.29, 4.30, 4.31, 4.32, 4.33, 4.44, 4.47, 4.48, 4.51,4.52, 4.55, 4.56, 4.57, 4.58, 4.59, 4.60, 4.61, 4.62, 4.63, 4.64, 4.67 4.68, 4.69, 4.71, 4.74, 4.76, 4.77, 4.79, 4.81 4.91, 4.93, 4.105, 4.143, 4.149, 4.150
Chapter 5	5.1,5.15,5.16,5.19,5.20,5.21,5.23,5.34,5.38,5.40,5.44,5.46,5.48,5.50,5.57,5.59,5.62,5.63,5.64,5.67,5.68,5.70,5.73, 5.74 5.75 5.76, 5.81, 5.82, 5.83, 5.84, 5.87, 5.95, 5.113, 5.129.
Chapter 6	6.1, 6.4, 6.5, 6.7, 6.8, 6.9, 6.10, 6.11, 6.13, 6.15, 6.17, 6.18, 6.19, 6.20, 6.21, 6.34, 6.39, 6.43, 6.45, 6.46, 6.50, 6.52, 5.56, 6.61, 6.63, 6.66, 6.70, 6.71, 6.72, 6.73, 6.74, 6.75, 6.76, 6.78, 6.81
Chapter 7	7.1, 7.2, 7.3, 7.4, 7.5, 7.9, 7.10, 7.11, 7.12, 7.13, 7.18, 7.21, 7.36, 7.37, 7.38, , 7.43, 7.44, 7.45, 7.49, 7.50, 7.52, 7.57, 7.58, 7.63,7.64,7.65,7.66,7.67,7.68, 7.69,,70, 7.87, 7.88,7.89,7.90,7.91, 7..92
Chapter 8	8.3, 8.4, 8.5, 8.6, 8.7, 8.9, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 8.24, 8.28, 8.42, 8.43, 8.44, 8.50, 8.51, 8.52, 8.53, 8.54 8.55, 8.56, 8.57, 8.58, 8.59, 8.60, 8.61, 8.62, 8.63, 8.64, 8.65, 8.66, 8.81, 8.82
Chapter 9	9.5, 9.6, 9.8, 9.9, 9.13, 9.14, 9.15, 9.17, 9.18, 9.19, 0.20, 9.21, 22, 9.35, 9.36, 9.37, 9.38, 9.39, 9.40, 9.41, 9.42, 9.43, 9.44, 9.45, 9.46, 9.47, 9.48, 9.49, 9.50, 9.52, 9.55, 9.57, 9.59, 9.63, 9.65, 9.67,9.68, 9.71, 9.75
Chapter 10	10.2, 10.4, 10.17, 10.18, 10.19, 10.20, 10.33, 10.34, 10.35, 10.36, 10.37, 10.38, 10.39, 10.40, 10.41, 10.42, 10.45, 10.46,
Chapter 11	11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8, 11.9, 11.10, 11.13, 11.14, 11.37, 11.38, 11.39, 11.40, 11.41, 11.42, 11.51, 11.52, 11.5 3, 11.54, 11.61, 11.62, 11.63, 11.64, 11.65, 11.66, 11.67, 11.68, 11.69. 11.70, 11.71, 11.77
Chapter 12	12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 12.8, 12.9, 12.10, 12.11, 2.12, 12.28, 12.33, 12.34, 12.35, 12.37, 12.38, 12.39, 12.40, 12.41, 12.42, 12.43, 12.44, 12.47, 12.49, 12.55, 12.57, 12.59, 12.61, 12.62, 12.63, 12.64, 12.67, 12.72, 12.76, 12.79, 12.80, 12.87, 12.88, 12.94, 12.101, 12.102

LABORATORY WORK

In all laboratory work two students will share the contents of the same locker. Both students are jointly responsible for the contents of their locker. However, the majority of the experiments are performed individually. The few experiments, which are performed in pairs, are indicated in the Laboratory schedule (2); For these experiments, each student:

1. must 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 on Mondays following the week during which the experiments have been performed (this is to allow working students to meet the deadline).

Late reports are accepted with a **10% penalty** per week.

After 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 and the appropriate Data Tables may be prepared in your Laboratory Notebook in advance).**
After the third laboratory session, you may not work in the laboratory if you do not have a Laboratory Notebook.
Please see page 8 of this outline about proper usage of your Laboratory Notebook.
4. **You are asked to pay a laboratory fee (\$ 20.00) which covers the cost of materials to be used in the laboratory section of the course.**
The laboratory fee is to be paid at the business office. Please keep your receipt and present it to your laboratory instructor. You will be issued a combination lock for your laboratory locker only after you and the classmate you are sharing the locker with, have paid the lab fees.
5. **The laboratory portion of the course makes up 40% of your grade:**
A) **Laboratory Reports and Unknowns: 20%**
B) **Laboratory Exams: 20% (open lab notebook)**
6. **THERE IS NO MAKE-UP LABORATORY WORK**

Student laboratory practices and responsibilities

- **Laboratory safety is everybody's responsibility. As a student in the chemistry lab you are responsible for understanding and following the guidelines below.**
- **Failure to do so may result in a reduction in your laboratory grade.**

General practices:

- Plan and conduct lab experiments in accordance to established directions and **safe practices**.
- Report unsafe practices, conditions and injuries to instructor or department chair.
- Maintain awareness of current safety or environmental practices.
- Exercise reasonable neatness as one of the best ways to avoid accidents and injuries.

safe practices in the laboratory:

- Know location of exits, fire extinguishers, fire blanket, fire alarm, safety shower, eye-wash stations and broken glass container in the laboratory.
- Wear eye protection whenever working with flames, concentrated acids and bases or instructed by the instructor.
- Restrain long hair, loose clothing and dangling jewelry.
- Shoes must be worn at all times.
- Clean your work station at end of laboratory from spilled chemicals, used matches, and other debris.
- Close reagent bottles after use, and wipe bottles clean if spill occurs.
- Clean up spilled chemicals immediately, using appropriate procedure.
- Keep containers of flammable liquids away from open flames.
- No eating, drinking, smoking or applying cosmetics in the laboratory.
- Do not perform unauthorized experiments, or use equipment without instructions.
- Do not return unused chemicals to the stock bottle. Share excess chemicals with other students or disposed of properly.
- Never leave heat sources such as hot plate or Bunsen burner unattended.
- Do not pipette by mouth. Use mechanical pipetting devices.
- Never work alone in the laboratory.

Incidents:

- Report all spills and accidents, no matter how minor, to the instructor immediately.
- Wash your hands immediately and thoroughly if they come in direct contact with chemicals.

- In case of a chemical spill, use the emergency spill kit to contain and neutralize the substance.
- In case of broken glassware, do not touch the broken glassware with your bare hands. Always use a broom and dust pan and discard them in designated broken glass container.

Upon Completion of Your Laboratory Experiments:

- Return all items to their proper locations. These items may include ring stands, clamp rings, wire gauzes, matches, etc. Nothing should be left on the laboratory counter top.
- Dispose of all used chemicals according to the instructions provided by your instructor.
- Shut off all gas, water and vacuum fixtures.
- Return all reagent bottles and sample vials to the instructor bench.
- Clean up workstation from spilled chemicals, used matches and other debris.
- Secure locker on your station.
- Wash hands thoroughly before leaving laboratory.

INSTRUCTIONS FOR LABORATORY NOTEBOOK

Each student must have a **quadrille ruled, sewn** Laboratory Notebook 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.

You will write only on the **right hand pages**. The left-hand pages are reserved for calculations and notes that do not belong on the right hand page. Begin with a **TITLE PAGE** State the course, section number, semester, the instructor's name, your name and your locker number.

The second page is an **INDEX**. As you do each experiment, list it by title and enter the numbers of the pages containing text for it. Leave a second page for continuation of the Index. At the bottom of the second index page, give the **complete bibliographic information** for the laboratory text used. (Title, author, publisher, date.) When you do this you can cite a reference simply by "Text"; otherwise you must cite the complete reference each time.

The remainder of the **right-hand pages** in the Notebook should be **numbered sequentially in the upper right corner of the page**. The **FORMAT** of the pages for each lab experiment is as follows:

TITLE:	Here you enter the title of experiment.	Page Number:	Date:
PURPOSE:	Write a short statement (one or two sentences, in your own words) of the purpose or the goal of the experiment.		
PROCEDURE:	Cite a reference to the appropriate text(s). Any changes made by the instructor may be noted on the left-hand side of the page.		
DATA/OBSERVATIONS:	Prepare a data table in which you will record the measurements you make in the lab. The lab Report Form often will provide a good format but it is wise to check with the instructor about the amount of space to be allowed when observations, rather than measurements, are to be recorded. Be careful to indicate units wherever appropriate.		
RESULTS:	This presents, in table form, the final answers to any required calculations. All work (i.e., set-ups for all calculations) must be shown on the left-hand page .		
CONCLUSIONS:	Essentially, your conclusions should answer the Purpose or the Goal of the Experiment. Write a few words of conclusion, indicating any experimental errors and their effects on your results. Also state whether or not you achieved the purpose of the experiment.		

As you work, enter your Data/Observations **in ink**. If you make an error or repeat an exercise, **DO NOT ERASE ANYTHING**. You may draw a line through the offending information and then enter the new value (It may be necessary to do this on the left-hand page, if there is no room on the right-hand page.)

If the entire page is in error, simply draw a diagonal line through the page and fold the page in half vertically.

NEVER, NEVER, TEAR OUT A PAGE (other pages will fall out as well).

BE PREPARED TO SHOW YOUR NOTEBOOK TO YOUR INSTRUCTOR AT ANY TIME!

Additional Information about the proper usage of the Laboratory Notebook is found in Appendix II of the Laboratory Manual used for this course ("Applied Chemistry" by Maria Fenyes, Los Angeles Mission College, and Fall 96)

LABORATORY SCHEDULE

Date	Activity	Report Points	Unknown Points
Feb. 6	Tour of the Lab. Laboratory Procedures. Proper use of Lab Notebook; Safety Video	---	---
Feb. 8	Experiment #1: The Balance	5	---
Feb. 13	Check-In	---	---
Feb. 15	Experiment #2: Density; Part I and Part II*	5	5
Feb. 20	President's Day (College closed)	---	---
Feb. 22	Experiment #2: Density; Part III*	---	10
Feb. 27	Experiment #3: Empirical Formula of a Compound (2)	10	---
Feb. 29	Experiment #4: Table Salt from Baking Soda	10	---
Mar. 5	Experiment #5: Analysis of Mixture of Salt & Baking Soda* (Unknown)	---	15
Mar. 7	Experiment #6: Net Ionic Equations (2)	15	---
Mar. 12	Experiment #7: Conductance in Solutions (2)	10	---
Mar. 14	LAB EXAM 1 (Experiments 1-5; Safety)	---	---
Mar. 19	Experiment #8: Activity Series	15	---
Mar. 21	Experiment #9: Standardization of a Base	10	---
Mar. 26	Experiment #10: Analysis of Vinegar	10	---
Mar. 28	Experiment #11: Stoichiometry involving a gas collected over water	10	---
Apr. 2	Spring Break (April 2-9)		
Apr. 4	Spring Break Con't		
Apr. 9	Spring Break Con't	---	---
Apr. 11	Experiment #12: Thermochemistry (2)	15	---
Apr. 16	Experiment #12: Thermochemistry (continued)	---	---
Apr. 18	LAB EXAM 2 (Experiments 6-10)	---	---
Apr. 23	Separation of Cations by Paper Chromatography *(unknown)	5	10
Apr. 25	Experiment #14: Atomic Emission* (unknown)	10	10
Apr. 30	Experiment #14 (continued) (2)		---
May 2	Experiment #15: Preparation & Properties of NaHCO ₃	20	---
May 7	Experiment #15: Preparation & Properties of NaHCO ₃ (continued)		---
May 9	Experiment #16: Effect of Temperature on Solubility (2)	15	---
May 14	Experiment #17: Chemical bonding and Molecular Polarity	15	---
May 16	Experiment #18: Crystal Structure (2)	20	---
May 21	Check-out	---	---
May 23	LAB FINAL EXAM (Remaining Experiments)	---	---

(2) Indicates that for this experiment students will work in pairs.

* Indicates that for this experiment an unknown will be assigned.

GRADING SCALE

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

ASSIGNMENT	POINTS	% OF TOTAL
• QUIZZES	50-100	10
• TESTS (3 x 100 points each)	300	30
• FINAL EXAM	150	15
• LABORATORY WORK		25
Laboratory Reports	200	
Unknowns	50	
• LABORATORY EXAMS		20
Lab Exam #1	50	
Lab Exam #2	50	
Lab Final Exam	100	
TOTAL	950 - 1000	950-1000

- The grading scale in the class is as follows:

A	90% – 100%
B	80% – 90%
C	65% – 79%
D	55% – 65%
F	less than 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 makeup exam per term or semester is allowed.