LOS ANGELES MISSION COLLEGE-FALL 2013
CHEMISTRY 101-SECTIONS 3066 AND 3077

Lecture: T,Th 1:55 – 3:20 pm **– Room: CMS 236 (SECTTIONS 3066 AND 3077)**
Laboratory: T, Th 3:30 – 4:05 pm – Room: CMS 236 (SECTIONS 3066 AND 3077)
Laboratory: T,Th 4:15 – 6:40 pm – Room: CMS 206 –Section 3066 – Instructor G. Godjoian
Laboratory: M,W 4:15 – 6:40 pm – Room: CMS 210 –Section 3077 – Instructor A. M. Qureshi

INSTRUCTOR: Dr. Gayane Godjoian
OFFICE & PHONE: CMS 244 & 818-833-3382
OFFICE HOURS: T 9:30 am -1:30 pm; Th 6:45-7:15 pm
M, W 6:15 – 6:45 PM
E-MAIL: godjoig@lamission.edu

INSTRUCTOR: Anjum Qureshi
OFFICE & PHONE: CMS-237 & TBA
OFFICE HOURS: M 6:40 -7:30 pm & W 3:30 - 4:15 pm
E-MAIL: quresham@lamission.edu

WEBSITE: www.profpaz.com

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**:
   Required: "**Chemistry: A Molecular Approach**" by N. J. Tro, Pearson, **3rd edition**
   A copy of text is available in the Library for reference use.
   Lecture Notes
   For Lecture notes go to www.profpaz.com

4. **LABORATORY MANUAL**: Applied Chemistry (2007) by Maria Fenyes, 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 (August 28th and 29th 2013).

5. **LABORATORY NOTEBOOK:**
   Required: This is a perforated spiral carbon copy laboratory notebook available in the L.A.M.C. Bookstore (Item number is 978-1-930882-23-2). You are required to have your laboratory manual by the 2nd class meeting (August 28th and 29th 2013). You are required to report all laboratory work in your Laboratory Notebook directly (no other sources).

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**
   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 (August 28th and 29th 2013).
   Approved safety goggles are available in the L.A.M.C. Bookstore and any college or university Bookstore (Z87-appropriate for chemistry).

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, and go over your lecture notes. 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. If you have any questions, come and see me during my office hours. The best resource for help is the instructor. The purpose of office hours is to set aside a block of time for the instructor to be available for students. You are not interrupting anything when you go to an instructor's office hour.
You and your questions are the most important thing! Please make use of this resource. Try to get your questions answered as soon as possible.

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.

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	8/27 8/29	1 1	Introduction to class-Chemistry and Scientific method Measurement and Error
2	9/3 9/5	2 2	Atoms and Elements Chemical Nomenclature
3	9/10 9/12	3 3	Molecules, Compounds, and Chemical Equations Stoichiometry
4	9/17 **9/19**	4 ---	Chemical Quantities and Aqueous Reactions **Test #1 (Chapters 1, 2, & 3)**
5	9/24 9/26	4 4	Ionic Reactions, Double Displacement Reactions Redox Reactions
6	10/1 10/3	4 5	Redox Reactions The Gas Laws
7	10/8 10/10	5 6	Kinetic-Molecular Theory Thermochemistry
8	10/15 **10/17**	6 ---	Thermochemistry **Test #2 (Chapters 4, and 5)**
9	10/22 10/24	7 7	Quantum Mechanical Model of the Atom Atomic Orbitals
10	10/29 10/31	8 8	Electron Configuration Electron Configuration
11	11/5 11/7	9 9	Ionic and Covalent Bonds Ionic and Covalent Bonds
12	11/12 **11/14**	9 ---	Resonance and Formal Charges **Test #3 (Chapters 6, 7, and 8)**
13	11/19 11/21	10 10	Lewis Structures: Bonding and Molecular Polarities, Molecular Geometry & Hybrid Orbitals and Molecular Orbital Theory
14	11/26 11/28	11 --	Changes of States/Liquids & Solids Changes of States/Liquids & Solids Thanksgiving- No Classes
15	12/3 12/5	12 12	Solution Concentrations Colligative Properties
	12/10 (3:00-5:00 pm)	---	**Final Exam (Chapters 9, 10, 11, & 12)**

_** This schedule is tentative and subject to change as the class progresses. Instructor reserves the right to change this schedule as class progresses.

Important Dates:
Last Day to add a class is September 6th 2013
Drop Classes without receiving a "W" is September 8th 2013
Las Day to drop a class with a "W" is November 17th 2013

LABORATORY WORK

In all laboratory, each student is responsible for the contents of their locker, and 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 Tuesdays 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 day.
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 (see page 6).
After the third laboratory session, you may not work in the laboratory if you do not have a Laboratory Notebook.

4. The laboratory portion of the course makes up 36% of your grade:
A) Laboratory Reports and Unknowns: 15%
B) Laboratory Exams: 21% (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.
- Closed-toe 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 pipettes.
- 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 **spiral bound copy (bottom page) perforated** 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.

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.

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

1. Your notebook must be bound, having duplicate style sheet. Do not remove original pages from the notebook.
2. Write your name, Chemistry 101, your lab section, and semester on the inside front cover.
3. 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.
4. Unless your lab notebook has a table of contents, reserve the first two pages for a table of contents.
5. 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.
6. 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 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 record observations of everything that happens during the experiment as it happens. 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 reaction, 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 units. Any data recorded by an instrument on another piece of paper, such as spectrum, should be permanently attached into the notebook as instructed. Record the model number of the instrument, the serial number, condition, and setting used.

Calculations. All 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. Remember to label all numbers with the appropriate units. Your calculation section must include a balanced chemical equation, calculation of the theoretical yield, and calculation of the percent yield of product.

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. Also, write down any suggestions you have for improving procedure.

References. Give the **complete bibliographic information** for the laboratory text used. (Title, author, publisher, date).

Questions. At the end of each experiment has set of questions. No need to copy the question, just answer each question.

LABORATORY SCHEDULE**

Week	Date	Activity
1	M-8/26 & T-8/27 W-8/28 & Th-8/29	Introduction to Laboratory Procedures & Proper use of Lab Notebook; Check-In & Safety Video (view at home) Experiment #1: The Balance
2	***M-9/2*** T-9/3 & W-9/4 Th-9/5	***Labor Day- No Class*** Experiment #2: Density; Part I - Part III* Experiment #3: Empirical Formula of a Compound (2)
3	M-9/9 T-9/10 & W-9/11 Th-9/12	Experiment #3: Empirical Formula of a Compound (2) Experiment #4: Table Salt from Baking Soda Experiment #5: Analysis of Mixture of Salt & Baking Soda* (Unknown)
4	M-9/16 T-9/17 & W-9/18 Th-9/19	Experiment #5: Analysis of Mixture of Salt & Baking Soda* (Unknown) Experiment #6: Net Ionic Equations (2) Experiment #7: Conductance in Solutions (2)
5	M-9/23 T-9/24 & W-9/25 Th-9/26	Experiment #7: Conductance in Solutions (2) Experiment #8: Activity Series **LAB EXAM 1 (Experiments 1-5; Safety)**
6	M-9/30 T-10/1 & W-10/2 Th-10/3	**LAB EXAM 1 (Experiments 1-5; Safety)** Experiment #9: Standardization of a Base Experiment #10: Analysis of Vinegar
7	M-10/7 T-10/8 & W-10/9 Th-10/10	Experiment #10: Analysis of Vinegar Experiment #11: Stoichiometry involving a gas collected over water Experiment #12: Thermochemistry (2)
8	M-10/14 T-10/15 & W-10/16 Th-10/17	Experiment #12: Thermochemistry (2) Experiment #12: Thermochemistry (2) Separation of Cations by Paper Chromotography *(unknown)
9	M-10/21 T-10/22 & W-10/23 Th-10/24	Separation of Cations by Paper Chromotography *(unknown) **LAB EXAM 2 (Experiments 6-10)** Experiment #14: Atomic Emission* (unknown)
10	M-10/28 T-10/29 & W-10/30 Th-10/31	Experiment #14: Atomic Emission* (unknown) Experiment #14 (continued) (2) Experiment #15: Preparation & Properties of $NaHCO_3$
11	M-11/4 T-11/5 & W-11/6 Th-11/7	Experiment #15: Preparation & Properties of $NaHCO_3$ Experiment #15: Preparation & Properties of $NaHCO_3$ (continued) Experiment #16: Effect of Temperature on Solubility (2)
12	***M-11/11*** T-11/12 W-11/13 Th 11/14	***Veteran's Day- No Classes*** Experiment #16: Effect of Temperature on Solubility (2) Experiment #16: Effect of Temperature on Solubility (2) Experiment #17: Chemical bonding and Molecular Polarity
13	M-11/18 & T-11/19 W-11/20 Th-11/21	Experiment #17: Chemical bonding and Molecular Polarity Experiment #17: Chemical bonding and Molecular Polarity Experiment #18: Crystal Structure (2)
14	M-11/25 & T-11/26 W-11/27 ***Th-11/28***	Experiment #18: Crystal Structure (2) Experiment #18: Crystal Structure (2) ***Thanksgiving- No Classes***
15	M-12/2 & T-12/3 W-12/4 &Th-12/5	Clean-up & Check-out **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.

** This schedule is tentative and subject to change as the class progresses. Instructor reserves the right to change this schedule as class progresses.

GRADING SCALE

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

ASSIGNMENT	% OF TOTAL
• **QUIZZES**	**13**
• **TESTS** (3 x 100 points each)	**36 (12 for each test)**
• **FINAL EXAM**	**15**
• **LABORATORY WORK** Laboratory Reports Unknowns	**15**
• **LABORATORY EXAMS** Lab Exam #1 Lab Exam #2 Lab Final Exam	**21**
TOTAL	**100**

- 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.

PLEASE TAKE A LOOK AT REVISED LABORTORY SCHEDULE FOR THE SEMESTER.

REVISED LABORATORY SCHEDULE**

Week	Date	Activity
1	M-8/26 & T-8/27 W-8/28 & Th-8/29	Introduction to Laboratory Procedures & Proper use of Lab Notebook; Check-In & Safety Video (view at home) Experiment #1: The Balance
2	***M-9/2*** T-9/3 & W-9/4 Th-9/5	***Labor Day- No Class*** Experiment #2: Density; Part I - Part III* Experiment #3: Empirical Formula of a Compound (2)
3	M-9/9 T-9/10 & W-9/11 Th-9/12	Experiment #3: Empirical Formula of a Compound (2) Experiment #4: Table Salt from Baking Soda Experiment #5: Analysis of Mixture of Salt & Baking Soda* (Unknown)
4	M-9/16 & T-9/17 W-9/18 & Th-9/19	Experiment #5: Analysis of Mixture of Salt & Baking Soda* (Unknown) Experiment #6: Net Ionic Equations (2)
5	M-9/23 & T-9/24 W-9/25 & Th-9/26	Experiment #7: Conductance in Solutions (2) Experiment #8: Activity Series
6	M-9/30 & T-10/1 W-10/2 & Th-10/3	**LAB EXAM 1 (Experiments 1-5; Safety)** Experiment #9: Standardization of a Base
7	M-10/7 & T-10/8 W-10/9 & Th-10/10	Experiment #10: Analysis of Vinegar Experiment #11: Stoichiometry involving a gas collected over water
8	M-10/14 & T-10/15 W-10/16 & Th-10/17	Experiment #12: Thermochemistry (2) Experiment #12: Thermochemistry (2)
9	M-10/21 & T-10/22 W-10/23 & Th-10/24	Separation of Cations by Paper Chromotography *(unknown) **LAB EXAM 2 (Experiments 6-10)**
10	M-10/28 & T-10/29 W-10/30 & Th-10/31	Experiment #14: Atomic Emission* (unknown) Experiment #14 (continued) (2)
11	M-11/4 & T-11/5 W-11/6 & Th-11/7	Experiment #15: Preparation & Properties of $NaHCO_3$ Experiment #15: Preparation & Properties of $NaHCO_3$ (continued)
12	***M-11/11*** T-11/12 & W-11/13 Th 11/14	***Veteran's Day- No Classes*** Experiment #16: Effect of Temperature on Solubility (2) Experiment #16: Effect of Temperature on Solubility (2)
13	M-11/18 & T-11/19 W-11/20 Th-11/21	Experiment #17: Chemical bonding and Molecular Polarity Experiment #17: Chemical bonding and Molecular Polarity Experiment #18: Crystal Structure (2)
14	M-11/25 & T-11/26 W-11/27 ***Th-11/28***	Experiment #18: Crystal Structure (2) Experiment #18: Crystal Structure (2) ***Thanksgiving- No Classes***
15	M-12/2 & T-12/3 W-12/4 &Th-12/5	Clean-up & Check-out **LAB FINAL EXAM (Remaining Experiments)**