Los Angeles Mission College Chemistry 65 Fall Semester 2013

Tel: (818) 240-1000 x5745

Section: #3059, 3060 Office Hours: MW 10:00-10:35 PM

Office TBA

Lec. MW 5:15-6:40 CMS 028 e-mail: gellerr@lamission.edu
Lab. MW 6:50-10:00 CMS 203 e-mail: rgellert@glendale.edu

Chemistry 65 is an introductory Chemistry Course. Pre-Requisites: Math 125 with a "C" or better, or appropriate math placement results.

Required Materials

Instructor: Dr. R. W. Gellert

- **1. Textbook**(s): <u>Introductory Chemistry</u>, 4th Ed., by Nivldo J. Tro, Prentice Hall (Pearson), 2011 (Available in LAMC Bookstore).
- **2. Laboratory Manual:** "Everyday Chemistry", Fenyes, Maria. (Available in LAMC Bookstore).
- **3.** Laboratory Notebook: Bound Laboratory Notebook (National #53-110 quadruled paper, *hard cover Composition Book*) This is available in the LAMC Bookstore. You must have the Laboratory Notebook by the *second class meeting*. You are required to record all laboratory work in your Lab Notebook.
- **4. Safety Goggles:** Case-hardened <u>safety glasses or goggles</u> (MUST BE WORN AT ALL TIMES IN LABORATORY WHEN EXPERIMENTAL WORK IS IN PROGRESS. Safety goggles are available in the LAMC Bookstore and in the CSUN Bookstore. You are required to have your safety goggles by the fourth 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.
- **5. Scientific Calculator**: Equipped with scientific notation and logarithm functions. You should have your calculator with you for all class sessions.

Optional Materials

- (1) **Lab Coat** –protective clothing.
- (2) **Periodic Table of the Elements:** This is available at LAMC Bookstore. However, a basic Periodic Table will be provided by the Instructor.
- (3) **Notebook** A spiral notebook is recommended for taking lecture notes.

Attendance: Not only is attendance essential but 100% attendance is *required*!. CHEMISTRY IS A DEMANDING SUBJECT! YOU CANNOT AFFORD TO BE ABSENT IF YOU WISH TO DO WELL IN THIS COURSE.

WELCOME TO THE COURSE. LET US WORK TOGETHER TOWARD AN ENJOYABLE AND SUCCESSFUL LEARNING EXPERIENCE.

I HOPE IT WILL BE WORTH THE EFFORT AND THAT THE KNOWLEDGE ACQUIRED WILL ENRICH YOUR LIVES.

HOW TO SURVIVE AND EVEN EXCEL IN CHEMISTRY 65

- <u>Chemistry 65 is a demanding course</u>. 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 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.
- <u>Look for connections</u> 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.

Resources

ME!!! I am your number one resource. You can contact me 24/7 via email as well as during and after laboratory period.

Myetudes.org \rightarrow This site will have lecture material, lab separates, practice exams, and many other resources that will assist you through the material in this course.

Etudes/Discussion and Private Msgs: Here you may post and ask questions, discuss topics with one another or email fellow students/intructor on any course topic.

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

YOU MAY USE ANY OTHER RESOURCE THAT YOU HAVE AVAILABLE: TO SHARE WITH CLASS, SPEAK WITH ME AND I WILL ANNOUNCE THE RESOURCE TO THEM.

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LABORATORY WORK

During the laboratory 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 is performed in pairs.

However, 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 no later than **one week** from the date experiment have been performed (this is to allow working students to meet the deadline). There is no penalty for turning in the laboratory report early[©].

Late laboratory reports are graded with 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 you 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 pages 3 & 4 of this outline about proper usage of your Laboratory Notebook.

- 4. The laboratory portion of the course makes up 25% of your grade:
 - A) Laboratory Reports and Unknowns:

12.5%

B) Laboratory Exams:

12.5% (open lab notebook)

There will be three Laboratory exams scheduled.

All exams will be of equal weight.

5. THERE IS NO MAKE-UP LABORATORY WORK!

INSTRUCTIONS FOR LABORATORY NOTEBOOK

- Each student must have a **quadruled hard bound** 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 <u>directly into the Notebook</u> (nowhere else) <u>in ink</u> (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.
- Begin with a <u>TITLE PAGE</u> 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 pages in the Notebook should be numbered sequentially in the upper left and right hand corner of each page.

The **FORMAT** of the pages for each lab experiment is as follows:

TITLE: Here you enter the **title of experiment**, the **Date performed**, and **page number**

PURPOSE: Write a short statement (one or two sentences, in your own words) of

the purpose or the goal of the experiment.

PROCEDURE: Prepare a summary of the procedure or 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 when appropriate 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: May be presented in table form, the final answers to any required calculations. All work

(i.e., set-ups for all **calculations**) must be shown in this section.

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 <u>in ink.</u> If you make an error or repeat an exercise, <u>DO NOT</u> <u>ERASE ANYTHING.</u> You may draw a line through the offending information and then enter the new value
- 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 ("Everyday Chemistry" by Maria Fenyes, Los Angeles Mission College)

AND RESPONSIBILITES

- 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.

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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.

Student Learning Outcomes (SLO): At the end of the semester students will be able to,

- 1. Conceptualize, model and explain chemical processes qualitatively at the molecular level.
- 2. Express mathematically and solve quantitative chemical problems.
- 3. Extract appropriate information, analyze and synthesize experimental results to reach correct conclusions.
- 4. Perform laboratory techniques safely and accurately and maintain a laboratory notebook according to standard scientific guidelines.
- 5. Represent and interpret data graphically.

MIDTEDM EVANO 4

Course Grade

Your grade in Chemistry 65 will be based on the following:

MIDTERM EXAMS- three				
(Exams will be announced in advance, No make-up exams given!)				
Weekly quizzes (9-12, 10-15 pts, drop 2 lowest)	10 %			
LABORATORY WORK	25 %			
Your laboratory work includes Two or Three laboratory open notebook	exams,			
experimental reports, and unknowns.				
There will be <i>No make-up</i> laboratory work.				
FINAL EXAM				
TOTAL	100 %			
Grading Scale: A: ~87-100 %, B: 76-86%, C: 65-75.9%, D: 55-64.9%				

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TENTATIVE LECTURE SCHEDULE

Week	Date	Chapter	Lecture Topic	Quizzes
1	M, Aug 26	1, 2	The Chemical World; Measurements and Problem Solving	
	W, Aug 28	2	Errors in Measurements, Significant Figures, units	
2	M, Sep 2		Labor Day (College closed)	
	W, Sep 4	2,3	C2 cont.; Matter and Energy	Q1
2	M, Sep 9	3	Matter and Energy cont.	
3	W, Sep 11	3,4	C3 cont.; Atoms and Elements	Q2
	September	8th	*** Last day to drop without "W" ***	
4	M, Sep 16	4,5	Matter and Energy cont.; Molecules and Compounds	
	W, Sep 18		Exam 1 (Chapters 1–4, 5.1-5.7 Type II Binary Cpds top of page 140.)	
5	M, Sep 23	5	Molecules and Compounds (Nomenclature) cont.	
	W, Sep 25	6	Chemical Composition	Q3
6	M, Sep 30	6,7	Chemical Composition cont.; Chemical Reactions	
U	W, Oct 2	7	Chemical Reactions cont.	Q4
7	M, Oct 7	8	Quantities in Chemical Reactions	
,	W, Oct 9	8,9	C8 cont.; Electrons in Atoms and the P.T.	Q5
8	M, Oct 14	9	Electrons in Atoms and the P.T. cont.	
	W, Oct 16		Exam 2 (5.7 p140 – 5.11, 6-9.4)	
9	M, Oct 21	9,10	C9 cont.; Chemical Bonding	
	W, Oct 23	10	Chemical Bonding cont.	Q6
10	M, Oct 28	10,11	C10 cont.; Gases	
10	W, Oct 30	11	Gases cont.	Q7
11	M, Nov 4	12	Liquids, Solids, and IMFs	
11	W, Nov 6	12	Liquids, Solids, and IMFs cont.	Q8
	M, Nov 11		Veterans Day (College Closed)	
12	W, Nov 13 Nov. 17 ->		Exam 3 (9.5-, 10-12) *** Last day to drop with "W" ***	
13	M, Nov 18	13	Solutions	
13	W, Nov 20	13	Solutions cont., Acids and Bases	Q9
14	M, Nov 25	13, 14	C13 cont., Acids and Bases	
14	W, Nov 27	14	C14 cont.	Q10
	11/28-12/1		ThanksGiving Holiday (Campus Closed)	
15	M, Dec 2	15	Intro to Chemical Equilibrium	
	W, Dec 4	15	C15 cont.	Q11
16	M, Dec 12		Final Exam Cumulative w/emphasis on last Chapters. 5:30 – 7:30 pm	

Tentative Laboratory Schedule

Week	Monday	Wednesday	Laboratory Experiment/Activity
1	Aug 26		Check-in; Safety Video
		Aug 28	Check-in; Safety Video
2	Sep 2	HOLIDAY	Labor Day (College Closed)
		Sep 4	Ex 1: "What Chemist Do"/Exercise A {Download (DL)*}
3	Sep 9		Ex 1: "What Chemist Do"/Exercise A {Download (DL)}
		Sep 11	Ex 5: Physical Properties of Household Liquids (Excel)
4	Sep 16		Ex 5: Physical Properties of Household Liquids (Excel)
		Sep 18	Bunsen Burner (DL); Ex 4: Quant. Sep. of a Mixture
5	Sep 23		Bunsen Burner (DL); Ex 4: Quant. Sep. of a Mixture
3		Sep 25	Ex 2: Semi-Quant. Separation of Food Dyes
6	Sep 30		Lab Exam I (Exp. 1, 5, B Burner, 4)
0		Oct 2	Lab Exam I (Exp. 1, 5, B Burner, 4, 2)
7	Oct 7		Exercise B – Nomenclature (DL)
,		Oct 9	Exercise B – Nomenclature (DL)
8	Oct 14		Ex 10: Combination and Decomposition Reactions
6		Oct 16	Ex 10: Combination and Decomposition Reactions
9	Oct 21		Ex 12: Double Replacement Reactions/Writing NIE (DL)
		Oct 23	Ex 12: Double Replacement Reactions/Writing NIE (DL)
10	Oct 28		Ex 11: Single Replacement Reactions
		Oct 30	Ex 11: Single Replacement Reactions
11	Nov 4		Lab Exam 2 (Exc. B, Ex 10-12)
		Nov 6	Lab Exam 2 (Exc. B, Ex 10-12)
12	Nov 11		Veterans Day (College Closed)
		Nov 13	Ex 9: Percentage Copper in Malachite
13	Nov 18		Ex 20: Density of CO ₂
		Nov 20	Ex 20: Density of CO ₂
14	Nov 25		Standardization of NaOH/ Unkown Acid Titration (DL)
17		Nov 27	Standardization of NaOH/ Unkown Acid Titration (DL)
	Nov 28	Dec 1	ThanksGiving Holiday (Campus Closed)
15	Dec 2		Lab Exam 3 - (Exc. D, Ex 20, Acid/Base Titr.)/Check Out
		Dec 4	Lab Exam 3 - (Exc. D, Exp. 9 20 Acid/Base Titr.)/Check Out

^{*} Download from Etudes (Dr. Gellert's website)