LOS ANGELES MISSION COLLEGE-FALL 2012
CHEMISTRY 102-SECS. 0150 & 0151
Lecture: T,Th 2:00–3:25 (CMS 236); Lab T,Th 3:30–6:40 (CMS 206 & 210)

INSTRUCTOR (Lecture): Dr. Mike Fenton
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OFFICE & PHONE: CMS 243 & EXT. 7888
OFFICE HOURS: M 2:00 - 4:00 PM
T 10:00 – 1:00 PM

INSTRUCTOR (CMS 206): Dr. Gayane Godjoian
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OFFICE & PHONE: CMS 244 & EXT. 3382
OFFICE HOURS: T, Th (CMS206) 6:40 – 7:10 pm
M, W 2:00 – 3:45 pm
T 2:00 – 3:00 pm

INSTRUCTOR (CMS 210): Maria Fenyes
E-MAIL: mariafenyes@earthlink.net

OFFICE & PHONE: PHYSICAL SCIENCE OFFICES
OFFICE HOURS: T, Th (CMS 210) 6:40-7:15 pm

1. **PREREQUISITES**:
   - Chemistry 101 with a grade of C or better.
2. **RECOMMENDED**:
   - Completion of Math 260 (Precalculus) or a higher level Math class with a grade of "C" or better

3. **TEXTBOOK**:
   - Required: "**General Chemistry**" by Ebbing, Houghton-Mifflin, **9th Ed.**
   - Copies of the Textbook and Study Guide are available on Reserve in the Library.

4. **LABORATORY NOTEBOOK:**
   - Required: This is a **quadrille paper,** hard cover "Comp Book", available in the LAMC Bookstore and in general office supply stores. You are required to have your laboratory notebook by the 2nd class meeting.
   - You are required to report all laboratory work in your Laboratory Notebook (See Page 5 f this outline for the proper use of the Laboratory 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 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.
   - Approved safety goggles are available in the L.A.M.C. Bookstore and in the C.S.U.N. Bookstore. Loaner goggles are also available in the laboratory.
   - You are required to have your safety goggles by the 2nd class meeting

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.

8. **100 % ATTENDANCE**

CHEMISTRY 102 is a demanding course!
IF YOU WISH TO DO WELL IN THIS CLASS, YOU CANNOT AFFORD TO BE ABSENT!

STUDENT LEARNING OUTCOMES

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.

TENTATIVE LECTURE SCHEDULE

Week	Date	Text Reference	Topic
1	T, Aug 28 Th. Aug. 30	13.1-13.2 13.3-13.4	Introduction to class – Rates of Reactions Rate Laws
2	T, Sep. 4 Th, Sep 6	13.5-13.6 13.7-13.9	Temperature & Rate Reaction Mechanisms
3	T, Sep. 11 Th, Sep. 13	14.1-14.4 14.5-14.6	Chemical Equilibrium Calculations with Equilibrium Constant
4	T, Sep. 18	14.7-14.9	Let Chaterlier's Principle
	Th, Sep. 20	**-------**	**Test 1 (Chapters 13–14)**
5	T, Sep. 25 Th, Sep. 27	15.1-15.5 15.6-15.8	Introduction to Acids & Bases Calculating pH of Strong Acids
6	T, Oct. 2 Th, Oct. 4	16.1-16.2 16.3-16.4	Weak Acid Equilibria Weak Base Equilibria
7	T, Oct. 9	------	Review for Test 2
	Th, Oct. 11	**-------**	**Test 2 (Chapters 15–16.3)**
8	T, Oct. 16 Th, Oct. 18	16.4-16.5 16.6	Hydrolysis of Salts/Common-Ion Effect Buffers
9	T, Oct. 23 Th, Oct. 25	16.7 17.1-17.4	Acid-Base Titrations Solubility Equilibria
10	T, Oct. 30 Th, Nov. 1	17.5-17.6 17.7	Complex-Ion Equilibria Selective Precipitation of Ions
11	T, Nov. 6	--------	Review for Test 3
	Th, Nov. 8	**--------**	**Test 3 (Chapters 16.4 –17)**
12	T, Nov. 13 Th, Nov. 15	18.1-18.3 18.4-18.7	Laws or Thermodynamics Gibbs Free Energy & Spontaneity
13	T, Nov. 20	19.1	Balancing Redox Reactions
	Th, Nov. 22	**Holiday**	**Thanksgiving (College closed)**
14	T, Nov. 27 Th, Nov. 29	19.2-19.4 19.5	Voltaic Cells & Cell Potentials Standard Cell Potentials
15	T, Dec. 4 Th, Dec. 6	19.6-19.7 ------	Equilibrium Constants & Cell Potential Review for Final Exam
16	**T, Dec. 11 (3:00-5:00)**		**FINAL EXAM (Chapters 18, 19)**

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).
Assessing Late Penalty for lab reports is up to the instructor's discretion.
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. **The laboratory portion of the course makes up 40% of your grade:**
   A) Laboratory Reports and Unknowns: 10%
   B) Laboratory Exams: 10% (open lab notebook)
5. **THERE IS NO MAKE-UP LABORATORY WORK**

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, Fall 96)

TENTATIVE LABORATORY SCHEDULE (T, TH)

Week	Date	Exp. #	Activity
1	T, Aug 28 Th. Aug. 30	---- 1	Laboratory Procedures; Safety Discussion; Check-in The Iodine "Clock" Reaction (Part I)
2	T, Sep. 4 Th, Sep 6	1 1	The Iodine "Clock" Reaction" (Part II) The Iodine "Clock" Reaction (Calculations)
3	T, Sep. 11 Th, Sep. 13	2 2	The Hydrolysis of t-Butyl Chloride The Hydrolysis of t-Butyl Chloride (Calculations)
4	**T, Sep. 18**	**----**	**First Lab Exam** **(You may consult your Laboratory Notebook)**
	Th, Sep. 20	3	The Equilibrium Constant
5	T, Sep. 25 Th, Sep. 27	3 4	The Equilibrium Constant (Calculations) The Equilibrium Game
6	T, Oct. 2 Th, Oct. 4	5 5	Stress on Equilibrium Systems Stress on Equilibrium Systems
7	T, Oct. 9 Th, Oct. 11	6 7	Acid & Base Strength pH
8	T, Oct. 16 Th, Oct. 18	8 9	pH of Various Solutions Buffers
9	T, Oct. 23 Th, Oct. 25	9 10	Buffers (Calculations) pKa of a Weak Monoprotic Acid,
10	T, Oct. 30 Th, Nov. 1	10 11	pKa of a Weak Monoprotic Acid (Calculations) Standardization of NaOH
11	T, Nov. 6 Th, Nov. 8	12 A 12 B	The Molar Mass of a Diprotic Acid Precision and Standard Deviation
12	T, Nov. 13 Th, Nov. 15	13 13	A Solubility Product Constant A Solubility Product Constant (Calculations)
13	T, Nov. 20	14	Qualitative Analysis
	Th, Nov. 22	-----	Thanksgiving (College closed)
14	T, Nov. 27 Th, Nov. 29	14 14	Qualitative Analysis Qualitative Analysis
15	T, Dec. 4	-----	Check-out
	Th, Dec. 6	**-----**	**Second Lab Exam** **(You may consult your Laboratory Notebook)**

COURSE GRADING SCALE

- You will be assigned a unique student code and password and can check your grade online. More detailed information will be given by the instructor after the 2nd week of class.

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

ASSIGNMENT	POINTS	% OF TOTAL
• **QUIZZES** (10 to 15 points each)	variable	**Up to 15**
• **TESTS** (3 x 100 points each)	300	**30**
• **FINAL EXAM**	150	**15**
• **LABORATORY WORK**		**20**
Laboratory Reports	Compressed to 200	
• **LABORATORY EXAMS**		**20**
First Lab Exam	50	
Second Lab Exam	150	
TOTAL	850 -1000	**100**

- The grading scale in the class is as follows:

A	90% – 100%
B	80% – 89%
C	70% – 79%
D	60% – 69%
F	less than 60%

Lab Grades Distribution

First Lab Exam:	**50 points**
Second Lab Exam	**150 points**
Molar Mass of a Diprotic Acid	**50 points**
Qualitative Analysis	**50 points**
All Other Reports	**100 points**
Total	**400 points**