

WEST LOS ANGELES COLLEGE

CHEMISTRY 102 SYLLABUS

Spring 2015

Instructor: S. Menon Ph.D. smenon102@aol.com (Preferred)

menonsn@wlaac.edu

Lecture: T, TH 5:10-6:35 PM MSA-403

Conference: T, TH 6:40-7.45 PM MSA-403

LAB: T, TH 7:50-9:55 PM MSA-405

Office hour: 4:15-5:00 PM (T,TH) –MSA-405

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Course description and objectives

CHM 102 General Chemistry, the second semester part of the year-long General Chemistry sequence is designed for science majors who require a two-semester general chemistry course. This course will cover a range of topics including kinetics and chemical equilibrium, acid/base equilibrium, complex ion and precipitation reactions. The course also will cover thermodynamics along with electro- and nuclear chemistry.

It is strongly recommended that Students whose previous chemistry background is inadequate for Chemistry 102 to take preparatory course like chemistry 101 or equivalent before enrolling in Chemistry 102. If there is a gap between the last time you took a chemistry 101 class and your current enrollment in this class, then I advice to begin your review now. **The minimum requirement to enroll in this class is completing Chemistry 101 with a “C” grade or better.**

Required Text Books:

- **Textbook: Chemistry- 9th Edition**
- **Zumdhal**
- **ISBN: 9781285992983**

- **Lab Manual: Laboratory Manual for Principles of General Chemistry**
- **9th Edition: J. A. Beran**
- **ISBN: 9780470129227**

The syllabus and lecture schedule are designed to cover most of the important concepts presented in this course, and their applications. There is no substitute for determined and perhaps lengthy effort to work out problems on your own. **You should not seek help until you have done at least some work on the chapter problems yourself.**

PLEASE UNDERSTAND THAT YOU CANNOT LEARN MERELY BY OBSERVING; IF YOU JUST WATCH ME WORK EXERCISES, OR READ THE SOLUTIONS IN THE SOLUTIONS MANUAL, WITHOUT FIRST HAVING MADE A SERIOUS ATTEMPT BY YOURSELVES, YOU WILL BE SEVERELY HANDICAPPED IN DOING EXAMINATIONS

There are services on campus for Students with learning disabilities. Such students may contact the office and get the appropriate help and accommodations.

Attendance:

- Attendance is **Mandatory**. Attendance will be taken during each class period until census. Regular attendance is mandatory in order to pass this course. **I do not drop any students; therefore it is the student's responsibility to withdraw from this course.** Students who have not officially dropped this class and have stopped attending will be assigned a letter grade of "F" if the name appears on the grade roster.
- In case of an absence you are responsible for any announcements pertaining to the class, hand-outs distributed, changes in the schedule etc. If you are absent for three consecutive lectures or three consecutive labs or three class meetings (lab & lecture combined) during the semester without a valid excuse **you will be excluded** from the class. Again, **You are responsible for officially dropping the class when you stop attending.**

Home Work: There is no homework. But you should attempt to solve the problems recommended at the end each chapter. There is no alternative to a determined and serious effort on your part to do the suggested exercises at the end of each chapter.

WHAT NEEDS TO BE DONE TO SUCCEED IN THIS CLASS?

1. You need to do problems. Lots of them. There is significant number of problems in the textbook. If you work through ***all*** of those and feel you need to do more, I can give you more. Don't do problems just to say you did them. Work through them to understand the techniques used to solve the various problems you will encounter in the class. When doing problems, don't look up the answers before you have arrived at an answer yourself. If you have to look at the answer to "solve" the problem, you **DO NOT** know how to solve it.

2. If you have questions, **ASK THEM!!! Do not be Afraid!!** I have no idea of what concepts you do not understand unless you make me aware of it. This is done by asking questions. I have also given my e-mail address, which allows you to ask questions asynchronously (you have to wait for an answer).

3. I will be constantly emailing you practice problems. I do not want them to be turned in, but I will call up on you during conference time for solutions. So I expect to you put an effort to do these problems and thereby gain confidence in problem solving

4. Students who make serious attempts to follow the lectures and practice problem solving will only succeed in this class.

Laboratory:

Chem.102 is a laboratory course. Failure to perform the experiments and hand in reports **on time** will result in unsatisfactory grade in the course.

For reasons of safety, lab work may be done only during the assigned laboratory periods and when the instructor is around.

Note: You must wear eye protection whenever you are in the Lab. if you do not have the appropriate eye protection you may be dismissed from the laboratory section with loss of credit for that exercise.

Do not wear contact glasses in the Lab. They can absorb or trap some organic vapors and fumes and could cause eye damage.

Eating or drinking in the Lab. is strictly prohibited. Read the instructions and the procedures for the experiment before coming the Lab. Preparing flow charts before coming to the Lab will help you to finish the experiment in time and prevents avoidable accidents from happening.

Record all the data (including your observations). Have your lab instructor **sign your report** book before you leave the lab at the end of experiment.

ABSENCES: There will be NO MAKE UP LABS! A grade of zero will be given for a missed lab session unless you can present a DOCUMENTED AND VALID excuse. LAB SWAPPING will be allowed only IF WRITTEN APPROVAL is obtained from me and the other instructor.

* PLEASE NOTE THAT A PASSING GRADE IN THE COURSE WILL BE CONTINGENT ON SUCCESSFUL COMPLETION OF ASSIGNED EXPERIMENTS.

Drop the class with refund **February 20, 2015**

Last day to withdraw without a "W": **February 20, 2015**

File Pass/No Pass **February 20, 2015**

Last day to withdraw with a "W": **May 8, 2015**

Use online process to drop class if personal visit to the admissions office is not possible

For other important deadlines, please refer to your Spring 2015 semester class schedule.

THE COLLEGE ACADEMIC HONESTY POLICY (PLEASE READ YOUR CATALOG) WILL BE ABSOLUTELY UPHELD FULLY IN THE COURSE.
NEITHER CHEATING OR COPYING WILL BE TOLERATED.

CELL PHONES: CELL PHONES MUST BE TURNED OFF OR SET IN A VIBRATE MODE DURING THE CLASS. IF YOU NEED TO VIEW YOUR MESSAGES, EMAILS, TEXT ETC, STEP OUTSIDE THE CLASS.

Course Grade:

Your course grade will be determined by your performance in 4 Midterms, 5 Quizzes, and a Final, Lab grade and individual project. There will be **no make-up** quiz or midterms under any circumstance. **You must bring your own charged calculator with you for each exam; no borrowing or sharing is allowed. No Programmable Calculators allowed during exams and quizzes.** An incomplete grade for the final will be given only if you are likely to pass the course. In addition, you must provide an adequate proof to show the reason for missing the final. A make-up final can only be given at my convenience, and may take up to the end of the following semester. If you miss **one** quiz or **one** mid-term for a valid reason, the weighting of the missed quiz or exam will be increased proportionately as below

Missed Quiz #1	Quiz #2 weighting affected
Missed Quiz #2	Quiz # 3 weighting affected
Missed Quiz #3	Final Exam weighting affected
Missed Quiz #4	Quiz #5 Weighting affected
Missed Quiz #5	Final Exam weighting affected

Missed Midterm #1	Midterm #2 weighting affected
Missed Midterm#2	Final Exm weighting affected
Missed Midterm#3	Midterm #4 weighting affected
Missed Midterm #4	Final Exam Weighting affected

If you miss more than one quiz or mid-term, the rest of the missed quiz or midterms will have zero grade.

Note: Mid Term 2 covers some of the fundamental concepts of this Course. If you miss this exam your final will have more questions related to midterm 2 than normal.

Final Exam: The final exam is a comprehensive Final that will cover all the topics covered during the semester.

Course grade Distribution:

Midterms: 4 exams @ 100 points	= 400 points
Quiz: 5 quizzes @ 20 points	= 100 points
Final: comprehensive	= 125 points
Lab: 10 reports @ 10 points	= 100 points
Qualitative Analysis	= 50 Points
Total	= 775 points

Course Grade:

697–775 = A

620–696 = B

543–619 = C

465–542 = D

Every quiz, midterm and final will have bonus points.

If you have an “A” in all the mid-terms ($\geq 90\%$) and have $\geq 90\%$ of points in all quizzes combined, you will be exempt from taking the final provided you have turned in all your required lab reports, including individual project.

CHEM 102 Fall 2015-Tentative Lecture Schedule
S. Menon Ph.D.

Week	Lecture (MSA 403)	Date
1	Chapter 12	2/10 2/12
2	Chapter 12/13	2/17 2/19
02/20/15 Last day to drop with refund and W/O "W"		
3	Chapter 13/14 14	2/24 2/26
4	Chapter 14 Exam 1 (3/5/15)	3/3
5	Chapter 15 Chapter 15	3/10 3/12
6	Chapter 15/16	3/17 3/19
7	Chapter 16	3/24 3/26
8	Chapter 16 Exam II (4/2/15)	3/31
9	SPRING BREAK (4/6-4/10)	
10	Chapter 6	4/14 4/16
11	Chapter 6 Chapter 17	4/21 4/23
12	Chapter 17 Chapter 17	4/28 4/30
13	Exam III (5/5/15) Chapter 18 Drop the Class with a "W" 05/08/15	5/7
14	Chapter 18 Chapter 18/19	5/12 5/14
15	Chapter 19 Chapter 19	5/19 5/21
16	Exam IV 5/26/15 Review	5/28
17	FINAL (6/2/15) 6.00 - 8.30 P.M.	

Quiz: **Wk 3,6,8,12,14, (TH/TU)**

LABORATORY SCHEDULE

Lab. Manual: J. A. Beran, *Laboratory Manual for Principles of General Chemistry*, 9th, John Wiley & Sons, Inc., 2009.

<u>Week/Date</u>	<u>Lab #</u>	<u>Experiments</u>
1. Feb. 10	Check-in Handout Handout	Lab. Safety Video Graphing Data and Curve Fitting & an Excel Tutorial Graphical Analysis
Feb. 12	Exp. <u>23</u>	Factors Affecting reaction rate
2. Feb. 17 19	Exp. <u>24</u> <u>24</u>	Determination of a Rate Law Continued
3. Feb. 24 26	Handout Exp. <u>16</u>	SPECIAL ASSIGNMENT Le Cha ^t telier's Principle
4. March 3 5	Exp. <u>34</u> <u>34</u> Continued	an Equilibrium Constant Continued
5. March 10 12	Handout Handout	K _a Determination of a Weak Acid Continued
6. March 17 19	Exp. <u>18</u> <u>18</u> Continued Handout	Potentiometric Analysis Continued Titrations and pH Curves
7. March 24 26	Exp. <u>35</u> <u>35</u>	Spectroscopic Metal Ion Analysis Continued
8. March 31	Exp. <u>22</u>	Molar Solubility & common Ion Effect
9. April 6-10	WEEK OF SPRING BREAK	COLLEGE CLOSED
10. April 14 16	Exp. <u>22</u> Exp. <u>26</u>	Molar Solubility & common Ion Effect Borax Dissolution & its Thermodynamic Properties
11. April 21 23	Lecture Handout	Qualitative Analysis Qualitative Analysis
12. April 28 April 30	Handout Handout	Qualitative Analysis Qualitative Analysis
13. May 07	Handout	Qualitative Analysis
14. May 14 May 16	Handout Handout	Qualitative Analysis Qualitative Analysis
15. May 21 28	Exp. <u>32</u> Handout	Galvanic Cells; the Nernst Equation Electrolytic Cells and Electroplating
May 28	CHECKOUT	

Safety: Experimental work is subject to hazards of many kinds, of which every person working in a laboratory should be aware. Once one is aware of the hazards involved in an experimental procedure, one's instinct for self preservation usually provides a sufficient motivation for finding ways of avoiding them. Certain specific hazards will be pointed out in connection with individual experiments. A separate handout on safety will be distributed during check in. You will also view a safety video during check-in.

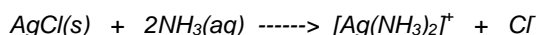
LABORATORY REPORTS: (I). For the experiments that are assigned from your laboratory manual, each one contains a formatted **Pre laboratory Assignment** and **Report Sheet** section. You must organize your observations and data to write reports that are legible, clear. As part of your report you will have to answer pre-lab questions assigned. These are to be completed before you begin your work and initialed by me. I will also assign specified questions from those that appear at the end of the **Report Sheet** in your lab manual. The lab reports with the specified questions answered are due one week from the completion of the lab.

(II). All other work, from handouts, must be recorded and evaluated in a well organized and readable fashion, so that anyone unfamiliar with the experiments can easily follow the presentation and thereby obtain a clear idea as to what was actually done and what results were obtained. In particular, your qualitative analysis report should be **typed** and must incorporate the following:

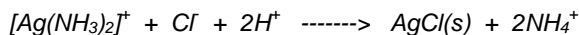
- (1). An introduction to the methodology employed in the experiments you have undertaken.
- (2). A grand generalized **flow chart** [Use Power Point] that outlines the overall scheme for the qualitative analysis of the five analytical groups. This group separation scheme should include as much detail as possible.
- (3). Schematic diagrams in the form of specific **flow charts** detailing the procedures of each project you carryout in the laboratory.
- (4). A list of the cations you find in each project of your general unknown. For every cation that you believe is in your test solution, with the help of a balanced equation(s), discuss the **specific tests** (confirmatory reaction(s)) used for the detection of the cation.

For example, consider the silver ion analysis:

Because many precipitates initially look just like silver chloride, a necessary confirmatory test involves the addition of aqueous ammonia. The water insoluble AgCl dissolves to form a colorless solution due to the formation of a complex ion with ammonia:



A subsequent re-precipitation of the white AgCl, upon the addition of excess acid, is a final verification that the original precipitate was silver chloride:



- (5). A few paragraphs as concluding remarks about any aspects of the projects.

Absences: There will be **NO MAKE-UP LABS!** A grade of **zero** will be given for a missed lab session unless you can present a **DOCUMENTED** and **VALID** excuse.