

2019 SPRING Semester

**General Chemistry Lab I (CH102)**  
**Exp.0. Orientation**

Department of Chemistry

**2019. 3.**

# Class:

- TA Name:
- My office:
- Extension Number:
- E-mail:



**Congratulations all of you  
and Welcome to  
General Chemistry Laboratory  
Class !**

# Today's Topics

- Introduction
  - Lab Schedule
  - Method of Evaluation / Grading
  - Additional Information
- 
- ❖ Safety Guide in the lab
  - ❖ Safety Video

# Introduction

- **Course Information**
- **Course Objective**
- **Course Requirement**

# 1. Course Information

1) Course Number: CH102

2) Lecture: Experiment: credit = 0:3 h:1

-Lab: 402, 406, & 704

(Goong-Ni Laboratory Building, E6-5)

## 2. Course Objective

- 1) To teach basic laboratory techniques
- 2) To introduce to elementary methods of assessing the significance of experimental measurements
- 3) To provide experiences that enable the students to acquire positive attitude toward CHEMISTRY, or SCIENCE

# 3. Course Requirement

- 1) Preparation in advance for experimental work.
  - Pre-laboratory reading preparation for successful experimentation.
  - Pre-lab quizzes are or pre-lab reports are required relating to the experimental details.
- 2) Wearing of eye protection and lab clothing at all times while in the laboratory.



### 3) Writing up and submission of lab reports.

Includes the following (but see evaluation):

- Observations and experimental detail.
- Detailed method of processing the experimental data. (For Quantitative analytical experiments)
- Calculations and Conclusions regarding the accuracy and the precision of experimental results and errors and the inherent errors based on the measurements.

# Lab Schedule

- Experiments
- Time Table
- Manual
- General Chemistry Website

# 1. Laboratory Experiment

(*Experiment #* in the lab manual)

Exp.0. Introduction, Work Instructions, and Laboratory Safety

Exp.1. Atomic and Molecular Structure (*Dry Lab 3*)

Exp.2. Periodic Table and Periodic Law (*Exp 11*)

Exp.3. Quantum Chemical Calculation: the Potential Energy Curve and the Orbitals of  $H_2^+$

Exp.4. A carbonate Analysis; Molar Volume of Carbon Dioxide (*Exp 13*)

Exp.5. Molar Mass of a Solid (*Exp 14*)

Exp.6. Thermodynamics of the Dissolution of Borax (*Exp 26*)

Exp.7. LeChatelier's Principle; Buffers (*Exp 16*)

Exp.8. Potentiometric Analysis (*Experiment 18*)

Exp.9. Molar Solubility; Common-Ion Effect (*Experiment 22*)

Exp.10. Galvanic Cells, the Nernst Equation (*Experiment 32*)

# 2. Time Table

*Class classification:*

*G1 Classes: A, D, G, J, M, P, S, V, AA/*

*G2 Classes: B, E, H, K, N, Q, T, W, Y, AB/*

*G3 Classes: C, F, I, L, O, R, U, X, Z, AC*

Time		Monday			Tuesday			Wednesday			Thursday			Friday		
a.m.	9:00~12:00	A	Prof.		G	Prof.		M	Prof.		S	Prof.		CH104 -A Y Z AA AB AC	Prof.	
			TA			TA			TA			TA			TA	
			Lab			Lab			Lab			Lab			Lab	
		B	Prof.		H	Prof.		N	Prof.		T	Prof.			Prof.	
			TA			TA			TA			TA			TA	
			Lab			Lab			Lab			Lab			Lab	
		C	Prof.		I	Prof.		O	Prof.		U	Prof.			Prof.	
			TA			TA			TA			TA			TA	
			Lab			Lab			Lab			Lab			Lab	
p.m.	13:00~16:00	D	Prof.		J	Prof.		P	Prof.		V	Prof.		AA AB AC	Prof.	
			TA			TA			TA			TA			TA	
			Lab			Lab			Lab			Lab			Lab	
		E	Prof.		K	Prof.		Q	Prof.		W	Prof.			Prof.	
			TA			TA			TA			TA			TA	
			Lab			Lab			Lab			Lab			Lab	
		F	Prof.		L	Prof.		R	Prof.		X	Prof.			Prof.	
			TA			TA			TA			TA			TA	
			Lab			Lab			Lab			Lab			Lab	

Period	Experiment #					Notes (Exp#/Lab#/Class)
	Mon	Tue	Wed	Thu	Fri	
2/25-3/1						
3/4-3/8	[Exp0]	[Exp0]	[Exp0]	[Exp0]	[Exp0]	Exp0/402/G1, Exp0/406/G2, Exp0/704/G3
3/11-3/15	[Exp1-3]	[Exp1-3]	[Exp1-3]	[Exp1-3]	[Exp1-3]	Exp1/402/G1, Exp2/406/G2, Exp3/704/G3
3/18-3/22	[Exp1-3]	[Exp1-3]	[Exp1-3]	[Exp1-3]	[Exp1-3]	Exp1/402/G3, Exp2/406/G1, Exp3/704/G2
3/25-3/29	[Exp1-3]	[Exp1-3]	[Exp1-3]	[Exp1-3]	[Exp1-3]	Exp1/402/G2, Exp2/406/G3, Exp3/704/G1
4/1-4/5	[Exp4]	[Exp4]	[Exp4]	[Exp4]	[Exp4]	Exp4/402/G1, Exp4/406/G2, Exp4/704/G3
4/8-4/12	[Exp5-7]	[Exp5-7]	[Exp5-7]	[Exp5-7]	[Exp5-7]	Exp5/402/G1, Exp6/406/G2, Exp7/704/G3
4/15-4/19						

Period	Experiment #					Notes (Exp#/Lab#/Class)
	Mon	Tue	Wed	Thu	Fri	
4/22-4/26	[Exp5-7]	[Exp5-7]	[Exp5-7]	[Exp5-7]	[Exp5-7]	Exp5/402/G3, Exp6/406/G1, Exp7/704/G2
4/29-5/3	[Exp5-7]	[Exp5-7]	[Exp5-7]	[Exp5-7]	[Exp5-7]	Exp5/402/G2, Exp6/406/G3, Exp7/704/G1
5/6-5/10		[Exp8-10]	[Exp8-10]	[Exp8-10]	[Exp8-10]	Exp8/402/G1, Exp9/406/G2, Exp10/704/G3
5/13-5/17	[Exp8-10]	[Exp8-10]	[Exp8-10]	[Exp8-10]	[Exp8-10]	Exp8/402/G3, Exp9/406/G1, Exp10/704/G2
5/20-5/24	[Exp8-10]	[Exp8-10]	[Exp8-10]	[Exp8-10]	[Exp8-10]	Exp8/402/G2, Exp9/406/G3, Exp10/704/G1
5/27-5/31	[Exp8-10]					Mon: Exp8/402/G1, Exp9/406/G2, Exp10/704/G3
6/3-6/6-6/7						
6/10-6/14						

# 3. Manual

*Laboratory Manual for Principles of General Chemistry,*  
Ninth Edition, J. A. Beran, John Wiley & Sons, Inc. (10<sup>th</sup> Edition)

You can purchase the lab manual at the bookstore of Main  
library (E9).



# 4. General Chemistry Website

[www.gencheminkaist.pe.kr](http://www.gencheminkaist.pe.kr)

The experimental procedure file with photos will be uploaded continually at a link, [Experimental Procedure] of left frame on the general chemistry website. Please look over the procedure on the manual and the file in advance so that you can complete your work successfully.

# Method of Evaluation and Grading

- Point distribution
- Grading & Examination Info.
- Details

# 1. Point Distribution

The student will be evaluated based on his/her performance of the requirement listed below.

**Point distribution per One Experiment = 100 points**

1. Pre- and post- Laboratory quizzes (30 pts)
2. Attitude (20 pts)
  - a. Lateness (5 pts)
  - b. Lab Safety or Cleanup (10 pts)
  - c. Concentration or Comprehension (5 pts)
3. Laboratory Reports (40 Pts)
  - a. Introduction
  - b. Result
  - c. Discussion
    - ✓ Summary
    - ✓ Assessing the results
    - ✓ Conclusions
  - d. Reference
4. Laboratory Questions (10 pts)

## 2. Grading & Examination Info

- ✓ Total 10 Experiments X 100 pts = 1000 pts :  
A (45-50%), B (45-50%), C-D (5%)
- ✓ Examination Information: **No examination.**

# 3. Details

## Part A. QUIZ (30 points)

- # of Problems: 8 ~ 10 questions
- Sources
  - Pre-Laboratory Assignment
  - Lab Report
  - Laboratory Questions

## Part B. Attitude (20 points)

- Section: Attendance-Late Coming
- Penalty points: -2 ~ -5 pts
- Explanations

When you arrive at the lab before TA calls your name, you get a full score, 5 pts. If you arrive 10 min late after the beginning of the lab, you get 3 pts. When you arrive between 10 min and 20 min, you will get the score, 0 pts. For being 20 minutes late, you can't participate in the lab experiment. (No chance any more.)

# Part C. Attitude

- Section: Attendance- Absence without notice
- Penalty points: -100 pts
- Explanations
  - If you are absent 3 times without any notices, F credit will be recorded.
  - The lab experiment is ONLY permitted in registered class.
  - Only valid excuses are illness (with a valid doctor's excuse) or unusual circumstance beyond your control (death in family), etc.
  - The student must submit written verification of them for an excused absence.

Section: Lab Safety & Cleanup

Penalty points: -5, -10 pts

Explanations

- **Personal Protective Equipment:** Safety glasses, Attire (lab coat) Wear approved eye protection at all times while in the laboratory. *The penalty is -5 pts for this.*
- **Care of balance:** Anyone found to be leaving spilled chemicals in the balance area or bench will lose 5 pts for each violation. Any chemicals spilled on the bench top or the balance pan during transfer are to be cleaned up immediately by the student.
- **Cleanup of Lab Bench:** The students are responsible for cleaning up their immediate lab bench area before leaving lab. This means wiping up any spills and disposing of any paper towels from the bench top and sink. Failure to do this result in a deduction of -5 pts.
- **Disposal of chemicals:** DO NOT discard chemicals down the laboratory sink. *The penalty is -5 pts for this.*



Section: Concentration & Comprehension

Penalty points: -5 pt

Explanations

### *Check lists*

- playing with gossiping
- cell phone (touching, ringing, chatting), and so on
- Repeated failure of the same experiment

*The penalty is -5 pts for each case.*

# Part D. Laboratory Report (40 Points)

## Report Template

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Date

Name

Co-worker

Introduction (~10 lines)

Summary of introduction on the lab manual.

Results

- Data or Analysis
- Calculations (with units)
- Graphs
- Tables

Discussion (20~40 lines)

- Summary
- Assessing the results ( Analysis)
- Conclusions

Reference

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# □ Rejection Policy

## 1<sup>st</sup> submission/Evaluation: Original Report

If it's OK, bonus point will be given.

If there is some part need to be corrected, TA ask for resubmission the report again (**1<sup>st</sup> rejection**)

## 2<sup>nd</sup> submission/Evaluation

If it's OK, No deduction Point.

If you didn't complete it, you will get 10 deduction point out of full points and must submit it again (**2<sup>nd</sup> rejection**).

## 3<sup>rd</sup> submission/Evaluation

If it's OK, -10 points deduction.

If NOT, -20 pts deduction without any further submission.

- Student must submit Result Summary to TA before leaving lab.
- Lab partner will share data, however separate lab report must be written by each student.
- Duplicate reports will be given a zero.
- Allowing someone to submit or resubmit your work as theirs will result in a zero for both parties.

# Part E. Laboratory Questions

- Points: 0 ~ 10 pt
- Explanations






You should solve the questions and submit them in lab class to your TA.  
*Identical question answers will receive a zero.*

# Additional Information

- Lab report submission
- Late report policy
- Laboratory Makeup policy

# 1. Laboratory Report Submission

- 1) Online submission: [www.turnitin.com](http://www.turnitin.com)
- 2) Create your account. Enter Class ID and Password (provided by TA).
- 3) Enter your name in Korean or English.
- 4) Submission due: Before the next experiment
- 5) Posting grade: Within 7 days from due date of the report
- 6) Plagiarism results in zero for all reports involved (determined by Chief TA and Instructor).
- 7) Late submission is not allowed in **Turnitin website**. You should send your lab report to your TA.

TITLE	SIMILARITY	GRADE
Test Assignment	--	
Demo Assignment	73% 	
Sample Assignment	91% 	
-- no submission --	--	

- Blue** - No matching text
- Green** - One word to 24% matching text
- Yellow** - 25-49% matching text
- Orange** - 50-74% matching text
- Red** - 75-100% matching text

8) The report for submission must contain the following items;

### Lab Report

- Date
- Co-worker
- Introduction
- Results : Date or Analysis, Calculations (with units), Graph, Tables
- Discussion: Summary, Assessing the results(Analysis), Conclusions
- Reference

**Turnitin** accepts submissions in this formats:

**Microsoft Word™ (DOC and DOCX)**



## 2. Policy regarding late lab reports

Lab reports are due at the start of the scheduled experiment, unless otherwise instructed. Your score on that report will be reduced by a percentage, based on when your TA received your report.

- ✓ Within 24 hours: -10 points
- ✓ More than 24 hours: -40 points

# 3. Laboratory Makeup Policy

- Make-ups are only for those who missed labs for a legitimate reason and got TA's permission to make up lab. (Give a written documentation to your lab TA during the next lab or bring it to his lab and ask permission to make up the missed lab)
- Missed labs without a valid excuse, shall count as zero (0) and the student will not be allowed to make up this missed lab.
- Students are not allowed to make up late lab reports or to make up more than two experiments during the scheduled lab make-up time. Re-doing labs is not possible.
- Missed scheduled make-ups will be counted as zero and will not be rescheduled unless exceptional circumstances exist.
- If more than three labs are missed with or without valid excused student shall fail the course.
- Your lab TA will let you know the make-up schedule and the due dates for make-up reports.

# Comments

- Familiarize yourself with...
- Think about these for both students and TA
- Due date of lab report
- Experimental Group

# 1. Familiarize yourself with the following items

- a. The nearest telephone
- b. Eye wash & Shower Location
- c. Fire blanket Location
- d. Fire Extinguisher Location
- e. Safety glasses holder
- f. Chemical Fume & Arm Hood

## **2. Familiarize yourself with the following Safety Concerns**

- a. Report all injuries
- b. Attire: Safety glasses....
- c. Acid and Bases
- d. Cleanup

# 3. Think about these.....

## 1) A Successful Student...

- a. Responsible and active
- b. Ask questions
- c. Are good time managers

## 2) A Good Teaching Assistant.....

- a. Grades lab reports correctly and fairly
- b. Gives feedback on the lab report that is helpful
- c. Is enthusiastic about teaching the lab

## 4. Due Date of Lab Report

The submission will close  
at 23:59 on the day before  
next lab class begins

# 5. Experimental Group

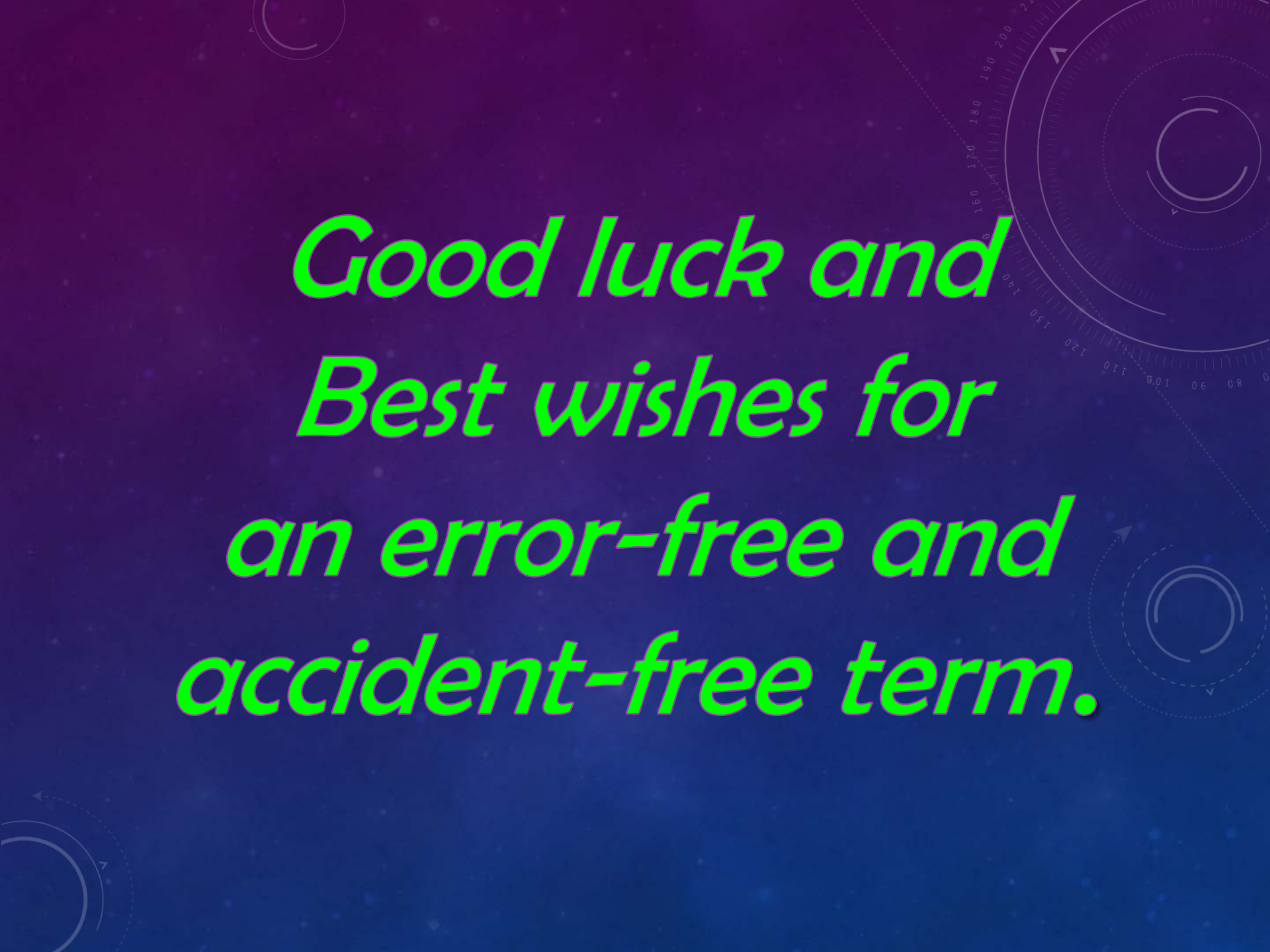
One or Two Student(s)  
Per One Experimental Group



# There are **four objectives** for you, the **student, in the laboratory:**

- ◆ To develop the skills necessary to obtain and evaluate a reliable original result.
- ◆ To record your results for future use.
- ◆ To be able to draw conclusions regarding your results (with the aid of some coaching and reading in the beginning).
- ◆ To learn to communicate your results critically and knowledgeably

By attentively reading over the experiments in advance, and by carefully following directions and working safely in the laboratory, you will be able to accomplish all these objectives.

The background is a dark blue gradient with a subtle pattern of white stars. Overlaid on this are several technical diagrams in a lighter blue color. In the top right, there is a large circular gauge with a scale from 0 to 240 and a needle pointing towards 180. Below it is a smaller circular diagram with concentric circles and arrows. In the bottom left, there is another circular diagram with a dashed line and an arrow. The text is centered and written in a bold, italicized, light blue font.

*Good luck and  
Best wishes for  
an error-free and  
accident-free term.*