

# SYLLABUS

## General Chemistry Laboratory II (CHEM 102L) Spring 2020

1. **The objectives of General Chemistry Laboratory II (CHEM 102L)** are to provide students with a practical, hands-on experience with the concepts, theories, and laws presented in the courses, General Chemistry I and II (CHEM 101 & CHEM 102). Specific experiences will include applications of the gas laws; the effect of temperature and chemical concentration on the rate of a chemical reaction; methods for determining the pH of a solution; and acid-base titrations.
2. **Course Resources:**
  - a. *Laboratory Experiments for General Chemistry*, 7th. Ed., by Evans, Gouge, and Huff. Laboratory procedures and report sheets are available for downloading on the course's Moodle page. Each student is responsible for printing their own copy of the lab procedures/report form, reading it in advance of the laboratory class meeting, and bringing it to that meeting. The labs will be turned in for grade at the end of each lab period.
  - b. *Laboratory Safety for Chemistry Students*, 2<sup>nd</sup> Ed., by Hill and Finster. Students will use this book to complete online, lab safety training. **NOTE:** Upper-level chemistry and biology courses require this same text for additional laboratory safety training; hence, **any student planning on enrolling in chemistry or biology courses beyond CHEM 102/102L should keep this text.**

**Safety Glasses:** Each student will be supplied his or her own safety glasses or goggles. Safety glasses must be worn at all times inside the laboratory. .

### 3. Grading Scale

Grade	Course Average Range
A	92 to 100
A-	91 to 90
B+	89 to 87
B	86 to 82
B-	81 to 80
C+	79 to 77
C	76 to 72
C-	71 to 70
D+	69 to 67
D	66 to 60
F	Below 60

#### 4. Factors affecting course grade

Lab Report Average	30%
Lab Test #1	20%
Lab Test #2	20%
Lab Quizzes	10%
Lab Safety Exercises	10%
Technique & preparation for lab	10%

Lab safety quizzes/exercises 10% will count so please do these (unlike last semester)

- Lab attendance policy:** All afternoon labs begin at 1:30 p.m. and evening labs at 5:30 pm on the assigned day and will normally meet first in Room 315, Richardson Hall. A copy of the PC Chemistry Department's class **ATTENDANCE POLICY** is located in the **COURSE INFORMATION** section on Moodle. All students are expected to read, understand, and comply with the policy.
- Many of the laboratory exercises will require basic mathematical computations. It is each student's responsibility to supply his or her own **CALCULATOR** for lab meetings.
- Preparation for laboratory:** Students are expected to have read the complete laboratory reference in *Laboratory Experiments for General Chemistry* (see schedule) for each lab meeting's exercise before the lab begins.
- The Department of Chemistry supports and enforces the College's Honor System. Chemistry students are expected to read, understand, and abide by the tenets of the PC Blue Book.

#### **SPECIAL NOTICE REGARDING LABORATORY DATA TAKING AND LAB REPORTS:**

It is expected that in many laboratory exercises, students will be organized into small groups to conduct experimental procedures and to collect data together; these activities are not Honor Code violations. However, the interpretation of data and the reporting of results and conclusions are, unless stated otherwise by the instructor, individual responsibilities.

**SPECIAL NOTICE REGARDING THE DEFINITION OF PLAGIARISM:** The Blue Book's definition of plagiarism is extended to include (with the phrase "words or ideas") the phrase "data and the numerical results of calculation(s)".

- Writing Requirements:** All lab reports must be written with a **PEN** using blue or black, water-insoluble ink. **Reports written in PENCIL will automatically be given a score of ZERO.** Reports of observations and results must conform to the basic rules of English grammar. Sentences should be complete and written in 3rd person, passive voice, and in past tense. **Errors recorded in lab reports should be corrected by striking a SINGLE LINE through each mistake. DO NOT SCRIBBLE through**
- Learning Disabilities and Necessary Accommodations:** Students with disabilities that affect academic performance must first meet with the Office of Academic Affairs at the beginning of each

term before any accommodations can be made. In order to maximize scholastic performance in the laboratory, it is recommended that each such student make an appointment with his or her instructor to privately discuss the nature of assistance.

11. **Laboratory Safety Training:** All students will complete ten, online lab safety exercises during this course. The exercises are open-book but must reflect each student's individual work only. Providing or soliciting help on these exercises is an honor code violation. The Laboratory Safety Training will be in a separate folder on the Moodle course page. The online training is self-paced; however, **the first five exercises must be completed by February 21, 2020 and the remainder by April 17, 2020.** Some laboratory safety questions may be on the lab exams.

## 12. Schedule of Laboratory Activity

<i>ACTIVITY</i> [Lab Title (Pre-Laboratory Tutorial Video)]	<i>Mon-V</i> Powell	<i>Tue-W</i> Miller	<i>Wed-X</i> Miller	<i>Thurs-Y</i> Hahn	<i>Fri-Z</i> Hahn
Lab Orientation & <b>Lab Check-in</b>	Jan. 6	Jan. 7	Jan. 8	Jan. 9	Jan. 10
Gas Laws (Use and Care of the Top-Loading Balance; The Laboratory Burner; Measuring Barometric Pressure)	Jan. 13	Jan. 14	Jan. 15	Jan. 16	Jan. 17
<b>NO LAB (MLK Remembrance Jan. 20)</b>	<b>Jan. 20</b>	<b>Jan. 21</b>	<b>Jan. 22</b>	<b>Jan. 23</b>	<b>Jan. 24</b>
Molecular Weight of Oxygen (The Laboratory Burner; Measuring Barometric Pressure)	Jan. 27	Jan. 28	Jan. 29	Jan. 30	Jan. 31
Hess' Law: Enthalpy of Ionization for the Bicarbonate Ion	Feb. 3	Feb. 4	Feb. 5	Feb. 6	Feb. 7
Determining the Molar Mass of a Compound by Freezing Point Depression	Feb. 10	Feb. 11	Feb. 12	Feb. 13	Feb. 14
Effect of Temperature on Reaction Rate (Using the Laboratory Burner) [AND PREP. FOR STOICHIOMETRY LAB]	Feb. 17	Feb. 18	Feb. 19	Feb. 20	Feb. 21 1 <sup>st</sup> 5 Safety quizzes due
<b>LAB TEST #1</b>	<b>Feb. 24</b>	<b>Feb. 25</b>	<b>Feb. 26</b>	<b>Feb. 27</b>	<b>Feb. 28</b>
Determination of the Order of Reaction by the Initial Rate Method (Using Burets and Pipets)	Mar. 2	Mar. 3	Mar. 4	Mar. 5	Mar. 6
<b>NO LAB (Spring Break)</b>	<b>Mar. 9</b>	<b>Mar. 10</b>	<b>Mar. 11</b>	<b>Mar. 12</b>	<b>Mar. 13</b>
Stoichiometry: Determination of the Equilibrium Constant for an Esterification Reaction (Handling Reagent Bottles; Using Burets and Pipets)	Mar. 16	Mar. 17	Mar. 18	Mar. 19	Mar. 20
Hydrogen Ion Concentration and Indicators (Handling Reagent Bottles)	Mar. 23	Mar. 24	Mar. 25	Mar. 26	Mar. 27
Titration of a Weak Acid with a Strong Base Using a pH Meter (Using the pH Meter)	Mar. 30	Mar. 31	Apr. 1	Apr. 2	Apr. 3
Solubility and $K_{sp}$ (Handling Reagent Bottles; Using Burets and Pipets)	Apr. 6	Apr. 7	Apr. 8	Apr. 9	Apr. 17 Last 5 safety quizzes due
<b>LAB TEST #2; Check-out of Lab</b>	<b>Apr. 20</b>	<b>Apr. 21</b>	<b>Apr. 22</b>	<b>Apr. 23</b>	<b>Apr. 24</b>

## CHEMISTRY DEPARTMENT ABSENCE POLICY

**OFFICIAL RECORD OF ATTENDANCE:** Each course instructors' attendance record will be the official record of attendance for all enrolled students.

**LIMITATION OF TOTAL (EXCUSED AND UNEXCUSED) ABSENCES:** Any student who accrues more than 10 total absences from lecture meetings in any course taken during one semester will be automatically dropped from said course and will be assigned a grade of "F"; students will also have a grade of F assigned for any corequisite of the said course that is being taken concurrently. [**Summer Terms:** Any student who accrues more than 3 total absences from lecture meetings in General Chemistry 101 or 102 during summer terms will result in a grade of "F" in the course.]

**ABSENCES FROM LABORATORY CLASSES:** All students, regardless of their class standing, have a maximum of one (1) unexcused absence from a lab; however, the work missed due to an unexcused absence will not be allowed to be made up and will result in a grade of "0" for the missed work. Any student exceeding one unexcused absence from lab will be dropped from the laboratory course with a grade of "F"; students will also have a grade of F assigned for any corequisite of the said course that is being taken concurrently.

**AUTHORITY FOR EXCUSING ABSENCES:** As outlined in the *Knapsack*, the College Absence Committee is the only body empowered to officially excuse absences. Applications for excuses may be obtained in the Academic Affairs Office located in the Smith Administration Building.

**UNEXCUSED ABSENCES:** Freshmen, first semester transfers and students on academic probation are referred to the attendance requirements outlined in the *Knapsack*, which states that these students are restricted to a maximum of four (4) unexcused absences.

All students enrolled in 100 level chemistry courses are limited to four (4) unexcused absences. Any student exceeding his/her maximum allotment of absences will be dropped from the course with a grade of "F".

An instructor may specify, in writing, the maximum number of unexcused absences for any student if, in the judgment of the instructor, the attendance practices of the student are adversely affecting his or her performance in the course.

**ABSENCES FROM EXAMINATIONS (CLASS AND LAB):** All students are required to take announced quizzes, tests, and examinations at the scheduled time. For excused absences, a student has one week from the date of return to class to make up missed quizzes, tests, or exams; after that time, a grade of "0" will be assigned for the missed work. An unexcused absence from any of the announced evaluations will result in a grade of "0".

For **unanticipated** excused absences (i.e., illness, family emergency, etc.), it is the responsibility of the student to make arrangements with the laboratory instructor for completing missed work. The student has one week from the date of return to class to make up the work; after that time, a grade of "0" will be assigned for the missed work.

For **anticipated**, excused absences (i.e., sports activities, field trips, etc.), it is the responsibility of the student to schedule, **in advance**, his or her make up of the missed laboratory assignment in one of the other laboratory sections when that particular exercise is being done. Failure to make proper arrangement will result in a grade of "0" for that assignment.

Because of the safety considerations that are covered in laboratory lectures before actual lab work, it is **imperative** (for the safety of the student, as well as his/her lab-mates) that the **student not be late for the start of lab**. Any student not present for the start of the lab lecture will be considered absent from the lab that is scheduled for that particular day.

**MAKING UP MISSED WORK:** For excused absences, a student has one week from the date of returning to classes to make up assigned work; after that time, a grade of "0" will be assigned for the missed work. The instructor will not be responsible for supplying any information or help on material covered during a student's unexcused absence.

Revised January 6, 2014

## Notes Specific to Dr. Hahn's Sections of General Chemistry II Lab:

**Professor:** Dr. Juliet Hahn  
**office:** Richardson 316  
If I am not in my office, I will leave a note where I can be found & you may follow me.  
**phone:** **office: 864-833-8420** cell 803-834-0827 (only for emergency)  
**email:** **jmhahn@presby.edu (easiest way to get a hold of me)**

## Dr. Hahn's Sections General Chemistry II Lab:

CHEM 101L Y – Thursday 1:30 to 4:30 pm (Richardson 315 prelab & calculation, Richardson 321 lab)

CHEM 101L Z – Friday 1:30 to 4:30 pm (Richardson 315 prelab & calculation, Richardson 321 lab)

Office Hours: 9 am to 10 am M; 10 am to 10:50 am T,W; 2 pm to 4 pm W (other times by appointment)  
I usually sit in my office with my office door wide open. If you see me in my office during non office hour times, you are welcome to drop by for help.

**For the Lab, you will need access to:** (see note on textbooks above) (a) In my moodle you already have access to the lab textbook downloads. See section above on textbooks. (b) You also need the lab safety textbook for the safety quizzes. (c) **a scientific calculator:** To perform calculations in this course, you will need an inexpensive “scientific calculator”. It does not need to be elaborate but should be able to express numbers in scientific notation (e.g.  $6.02 \times 10^{23}$ ) and must have log (and ln) functions. You can buy such a calculator for around \$5 to \$10.00 at the local discount store.

Students in my sections of the General Chemistry II Lab may attend any of my 2 sections on any given day. **(Please note the departmental attendance policy.) Notify me & confirm at least a day in advance if you want to do the lab in a different section of the General Chemistry II lab.** As long as you do the lab and there is room in the lab, you **do not need to give me any reason** for wanting to do the lab in the other section.

**Lab Safety Quizzes:** The Lab Safety Quizzes will be open book, open notebook but closed neighbor & friends. The Lab Safety Quizzes are already posted in moodle and are self paced. You may have 3 attempts to answer each quiz with as much time as you want to complete the safety quiz. Do not however spend all your time trying to get a perfect score in the safety quizzes at the expense of not studying for higher value assignments such as lab exams & exams in other classes. I am going to require that you complete the **first 5 safety quizzes by 2/21 Friday at 24 hrs (midnight) (before your lab midterm week).** I am going to require that you complete the last **4 safety quizzes by 4/17 at 24 hrs (midnight) (before your lab final exams week).**

Wrote 4 – I meant 5

**Lab Prelab Quizzes:** Lab Prelab Quizzes will be done **after the prelab lecture and before the lab starts.** The Prelab Quizzes will be open book, open notebook, open neighbor, can ask questions to me and should take about 5 to 15 minutes to complete. The Prelab Quizzes are designed to ensure that you have read the lab and paid attention to the prelab lecture.

**Lab Report Grade** will consist of completing the lab report form and **MUST be turned in before you leave the lab the day the experiment is completed.** **If you are unable to complete the lab report form the day of the experiment, you may turn in the lab report form the following day (24 hours later) for 10% penalty.** If you neglect turning in the lab report form on time you will lose 10% for every 24 hours the lab report is turned in late. Students sometimes hold onto lab reports hoping for a better grade but if you hold

onto the lab reports, you will often end up doing worse even without penalty points because you forget, you misplace data from the lab, etc.

The reason most students earn an F in the lab is: (a) missing labs without an excused absence (b) doing the labs but turning in no lab reports for multiple labs (c) turning in lab reports with large portions blank. Otherwise because all the work (except for lab exams) is open book, open notebook, open questions to me and lab colleagues, most students do well in labs. (note: asking questions to lab colleagues and working together is NOT the same as copying the answers letter by letter from lab colleagues (honor code violation).

### **Excused Absence vs Unexcused Absence:**

**Excused Absence:** Examples of Excused Absences are: medical grounds, death in the immediate family, documented weather related transportation problems and university business. (Official PC sports team excuses and university wide emailed excuses are of course acceptable excused absences.)

You must have hardcopy documentation such as a doctor's signed note on letterhead, newspaper article for funeral listing your name, funeral program obtained at the service or a letter from a professor or coach stating that you worked on behalf of the university on the given date. Examples of working on behalf of the university could be that you were a part of an official university sports team or that you represented the University at a conference.

**Please provide me a hard copy (college wide official emailed excuses are acceptable documentation & need no additional documentation) of your documentation for my files ASAP (before missing the work or at the very least within 7 calendar days of return to college).** If you are going to make up the missed Test, within 7 calendar days of return to college, you do NOT need to have any excuse or documentation.

**Unexcused Absence:** Examples that are not valid excuses include: personal problems, oversleeping, going away for the weekend, etc. In any case, it is always in your best interest to tell me your excuse because it is possible that I may accept your excuse.

Missed Labs: There are no makeup labs after the week that the lab experiment has been completed. If you are unable to makeup the labs in one of my sections, you may ask to do the makeup lab in one of the other professor's sections. Email both me and the other professor for permission to do the lab experiment in the other section. The other professor will collect the lab report form at the end of lab period and give it to me for grading. If you miss a lab, do not make up the lab the week of the lab and have an unexcused absence, then you will earn a zero on the missed lab. If you have a valid excused absence and you were unable to make up the lab the I will average in a grade for the missed lab using the method in the example.

(example:  $\text{missed lab 2} / \text{your average all other labs} = \text{class average lab 2} / \text{class average all labs}$ )





## Syllabus Agreement Form, Information Sheet & Permission to Return Exams Form

I have read and understand the policies stated in the syllabus for Dr. Hahn's **CHEM 102 Lab** class for the Spring semester of 2020. All questions have been answered to my satisfaction. By signing this sheet I agree to abide by the policies stated therein.

Your signature \_\_\_\_\_ **CHEM 102 Lab Spring 2020**

Print your name: \_\_\_\_\_ Date submitted: \_\_\_\_\_

I am in the [(Thursday 1:30 to 4:30 pm) (Friday 1:30 to 4:30 pm) ] (circle one) section

\*\*\*\*\*Information Sheet (note: **your official PC emails will be used for PC official communications**)

contact phone # \_\_\_\_\_ contact email address \_\_\_\_\_

major \_\_\_\_\_ year (please circle one) fresh, sophomore, junior, senior, other

if other please explain \_\_\_\_\_ last chemistry course taken (course name)

\_\_\_\_\_

when (year, semester) \_\_\_\_\_ where (here, other) \_\_\_\_\_ cumulative GPA \_\_\_\_\_

grade received on last chemistry course \_\_\_\_\_

other science courses taking currently (give course name) \_\_\_\_\_

\_\_\_\_\_

Are you doing research? (yes, no) If so with whom? \_\_\_\_\_

Why are you taking this class? \_\_\_\_\_

hobbies: \_\_\_\_\_

Feel free to tell me anything else you would like me to know about you:

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\* Permission to Return Exams & Show Grade Excel sheet in class (not posted but shown in class only)

I \_\_\_\_\_ (sign name) [(do) or (do not)] (circle one) give Dr. Hahn permission to return my actual exam/quizzes/HW in a self serve fashion in folders. I also give

Dr. Hahn permission to show class grades by the following 4 digit numbers. \_\_\_\_\_ (do not use an identifiable 4 digit # like SSN) (Written excel sheet with everyone's grades by 4 digit # will be sent around the classroom to allow you to check for errors – 10 prelab quiz, 10 lab reports, 10 safety quizzes- can't give individual handout with grades often, Moodle has clunky input/output, will be scrambled by your 4 digit # - not alphabetical probably for both sections on same sheet ) (DO NOT give me # if you don't want grade to be on excel sheet.)