

## Emmanuel College CHM 220L Fall 2017 General Chemistry I Lab

**Professor:** Dr. Juliet Hahn  
**office:** WSRC 203  
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**class time:** Lab Section 1 Thursday 12:30 to 2:20 pm WSRC 204 (CHM 220L51)  
Lab Section 2 Thursday 2:30 to 4:20 pm WSRC 204 (CHM 220L52)  
Lab Section 3 Thursday 4:30 to 6:20 pm WSRC 204 (CHM 220L53)

(You may make up lab in any section of lab as long as there is room for you to work safely but only on the day of the experiment [preferably with prior notification to me]. Equipment and chemicals will be unavailable after the lab is complete at the end of the day.)

Lecture MWF 9:00 – 9:50 am WSRC 105 (CHM22051)

Lecture MWF 10:00 – 10:50 am WSRC 105 (CHM22052)

**Mission Statement:** “Emmanuel College is a Christ-centered liberal arts institution which strives to prepare students to become Christ-like disciples who integrate faith, learning, and living for effective careers, scholarship and service”

**Course Objective:** Chemistry is the science which allows control of matter by understanding matter at the molecular level. Chemistry is also the necessary foundational class to many careers. (pharmacist, medical doctor, nurse, physician’s assistant, veterinarian, engineer) A firm understanding of Chemistry will prepare students to become Christ like disciples who will go on to help make the world a better place through their disciplined hard work. For a detailed understanding of what topics will be covered in this class this semester, please view the table of contents in the first half of the textbook.

**office hours:** (held in either WSRC 203 or WSRC 204) Monday & Wednesday 2 to 5 pm, Tuesday 4 to 5 pm, Thursday 8 to 10:50 am and other times by appointment. (Please email me to make an appointment at times outside the posted office hour. If you need me, I will always find the time to meet with you.) I will also usually be available most days before & after my classes. I am also almost always in my office during normal business hours from 9 am to 5 pm Monday through Friday. I have a log sheet on my office door so you can tell if I have left for the day.

**For the Lab you will need access to:** (a) **Laboratory Manual for Principles of General Chemistry by J.A. Beran (EC Custom Text**, available only at Emmanuel College Bookstore) for background reading (b) **lab procedure handouts** which I will hand out at least one lab period prior to the lab (c) **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. (d) **lab notebook** The lab notebook can be loose leaf paper or spiral notebook so that you can pull out pages for notebook turn-in. (Please do not use the hardbound composition type notebooks. It is hard for me to carry those around while grading them.) (e) **safety goggles:** Will be provided by the Science Department.

**For the Lecture you will need access to:** (a) **Textbook**, Chemistry (12<sup>th</sup> edition) by Chang and Goldsby (ISBN 9780078021510, publisher McGraw Hill Education) You will also need (b) 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. You will be able to use your calculator on all exams. You will **not** be allowed to use a cell phone as a calculator on quizzes & exams.

Quizzes and exams **for the lecture** (& answer keys) will be posted online at <http://JulietHahn.com> after you take the quizzes and exams. I will also post the answer key for quizzes and exams after you take the quizzes and exams on the bulletin board in Science. Please download the blank form of the quiz & work through the quiz to study for the exam. Please download the blank form of the exam & work through the exams to study for the final exam. You will **never ever** see the same question given on a quiz also on an exam. (The idea is to **understand** the questions on the quizzes & exams.) (at the exam, you will be required to leave all books, notes, cell phones in front of the room)

**General Chemistry 220L** is a stand alone 1 credit class. Your lab grade will be assigned independent of the lecture grade.

**Grading:** Lab Grading will be based on the following.

lab reports (& for some labs lab notebooks instead of lab report grade) ..... 75 %  
(You may drop either the lowest lab report grade or one (and only one) zero for missing a lab report without a valid documented excuse.)

lab final exam ..... 25%  
The lab final exam will be given at the end of the semester and will cover material on the lab reports and material discussed during the lab. If you knew what you were doing while doing your labs and while writing up your lab report, you should do as well as you did on your lab reports.

Lab Report Grade will consist of **3 points (out of 10 pts for the entire lab report grade, 30%)** for attendance at the beginning of lab by my signature on your lab report form (or notebook), and your signing out of the lab at the end of the lab (with time of sign out on attendance sheet). **You are getting points for showing up and doing the lab.**

**technique points:** Up to a maximum of **30%** may be removed from your lab report grade for technique. Primarily this is anything which will endanger you or your colleagues working in the lab. **(10%)** for each incidence of not having your safety glasses on while anyone in the lab is doing any kind of chemical experiment **(Up to 30%)** for a single incidence of you not following Dr. Hahn's specific directions such as "Do not go near that open flame with that liter bottle of ether!!!!" Let's say you go to the open flame with the open liter bottle of ether and set yourself and 2 of your neighboring colleagues on fire. You will have lost 30% of the lab report points **and** may be scarred for life.

**Prelab points:** Prelab points will be for you coming to class with the lab procedure written out in your "lab notebook". At the beginning of the lab period, I will check your prelab at the same time that I initial your lab prelab. The prelab points and the signature points and the technique points are actually going to be the same 30% of the lab report grade.

**3 possible reasons to lose the same 30% of your lab report grade:** (a) not getting my initials on your lab report and not signing out at the end of the lab period (possibly turning in a lab report for a lab not done) (b) not having the prelab (written out procedure when you get to lab) done when I come around to initial your lab report (c) losing technique points (really these are safety violations)

You will work in groups of two all semester long. You are not required to work with the same partner all semester long but you must complete each lab started with the same lab partner.

**Please note the following.**

1. You will either receive a lab report form or will be asked to complete a lab notebook (on loose leaf paper to be turned in ) for each experiment. Reports can be turned in only for experiments actually performed by the student.

This means that if you turn in a lab report and the report form/prelab notebook page does not have my signature on it, (and you did not sign out at the end of lab) it is possible that you will only lose **30%** of a **lab report grade** ( if I know that you were actually in lab and forgot to sign out and forgot to get my signature). **At my discretion, it could also mean that I opt not to accept your lab report at all because I know that you were not actually in the lab (and did not perform the experiment) for which you turned in a lab report.**

2. **Reports are due at the next lab class (on Thursday) after the completion of the lab [ the beginning of the lab class period (at 12:45 pm or at 2:45 pm, or at 4:45 pm) 15 minutes after the start of the lab class]** and points will be deducted for those turned in late at the rate of 20 % per business day. Reports turned in after 5 business days after the due date will receive a grade of 3/10 (3 pts for being in lab and signing in and signing out). For example, if the laboratory period is on 8/24 Thursday at 12:30 pm, the report is due by 12:45 pm on 8/31 Thursday. If you turn in the lab report on 8/31 Thursday at 1:00 pm (15 minutes past deadline of 12:45 pm) you will lose 20% of the lab report grade. You will still lose the same 20% even if you turn it in at 12:45 pm on 9/1 Friday). The late lab report will be worth a maximum of 8 points. [If you spend all lab period finishing up the last lab report, you will not be able to complete the current lab experiment and will get even further behind. You might as well turn in the lab report by the following day because you will lose the same number of points.] **If you turn in the lab report 5 business days from the deadline** the report will be worth **zero points**. [how I count 5 days from the deadline: for example if the report is due on 9/14 Thursday at 12:45 pm: **1 day (20% off) 9/15 F before 12:45, 2 days (40% off) 9/18 M before 12:45 (weekend does not count because it is not a business day), 3 days (60% off) 9/19 T before 12:45, 4 days (80% off) 9/20 W before 12:45 , 5 days (100% off) 9/21 Thursday before 12:45 am**), the report will be worth **zero** points. (If you have my signature & you signed out, you will still get 3 of 10 points for having been in lab and having done the experiment. If you don't turn in your lab report at all, you will earn zero points for that lab report form even if you signed in and have my signature on the lab report form [because I can't see my signature on your lab report form].)

3. **You will get to drop one lab (and only one lab)**. The dropped lab can be your lowest grade lab or can be a zero for one missed lab with no excuse. Labs not attended will count as zeroes. If you attended the lab and performed the experiment (as shown by signature on the lab attendance sheet & my signature on your lab report form) you will have earned a 3 of 10 for the lab. If you missed a lab and cannot show hardcopy documentation which supports a reason why you missed the lab, you will earn a zero on that lab. Valid excuses for missing a lab are: medical excuse, death in the immediate family, working on behalf of the university in an official capacity same as in the lecture. **It is always in your best interest to ask me if your excuse is valid rather than assuming that it is not.**

**You may also make up your lab in my other lab section with no documentation** on the day of the lab. Because glassware and chemicals will be removed after the lab day, you will not be able to do a make up lab on some other day or week.

If you can provide solid documentation of a valid reason for missing the lab, I will average and plug in a lab grade.

Example Calculating a grade for a missed lab with a Valid Documented Excuse (Example is for a missed lab #2.):

(your missing lab 2 grade to calculate)/(your average all labs)=(class average on lab 2)/(class average all labs)

(your missing lab 2 grade to calculate) = [ (class ave on lab 2) \* (your ave all labs) ] / (class ave all labs)

I can only calculate an averaged grade for a missed lab at the end of the semester after I have everyone's averages.

4. Academic dishonesty on any lab will result in a grade of zero for that report.

5. Anytime a problem is worked, the answer alone is not sufficient. You must show the work for the calculations or you will lose most of the points. **Showing the calculations** does not mean just showing me all your additions and divisions. Showing calculations means: (a) you show the equation (b) then you show the equation with all of the numbers filled in and (c) then you show what your calculator spits out as the final number answer. **I do actually read your work in the calculations to grade your lab report.** (If you just give me a final number I cannot tell if you had a huge experimental error or if you just did your calculation incorrectly or if you just made up some random number and posted it as the answer. I normally do not count off for experimental error but do count off for incorrect calculations.)

**Email Dr. Hahn immediately if you miss a lab or know that you will be missing a lab preferably with the documentation for missing the lab class.** If your absence has a documented excuse acceptable to me, then I will substitute your missing grade with your average prorated for the class's average. I can only calculate this at the end of the semester because I will not have the average for the semester for lab reports until the end of the semester.

**Notes:** The following should be noted concerning the laboratory period.

A. Some medical conditions make exposure to certain chemicals unwise. If you are currently under treatment by a health professional and/or you have a concern about possible exposure to chemicals in the laboratory required for this course, please discuss this matter with your physician.

B. Students are expected to be ON TIME for the laboratory period. ON TIME means to be in your seat when it is time to start the class. **If you come to lab (meaning the beginning of the prelab recitation period, (12:30 pm or 2:30 pm or 4:30 pm) 15 minutes after the start of the lab period (at 12:45 pm or 2:45 pm or 4:45 pm), you will lose 30% points. (You may also set yourself on fire because you do not know the safety instructions discussed in the prelab lecture.)** If you miss the first half hour of the class period (first half hour of class is: 1 pm or 3:00 pm or 5:00 pm Thursday you may be banned from performing the experiment during the scheduled

laboratory period that day. If you are thrown out of lab for being more than a half hour late to class, that day's lab will earn a zero and you may or may not be allowed to make up the lab, depending on whether you had a valid, acceptable reason for being late or not.

C. The laboratory attendance policy requires all laboratory periods to be attended and all required reports turned in prior to the final exam for the lab. I will NOT accept late lab reports (to grade) turned in AFTER the lab final exam. It would be worth 30% anyway. **You should also hold onto your graded lab reports/"lab notebooks" to turn into me at the end of the semester as well.** (If you do not turn all lab reports/notebooks in at the end of the semester, there will be some sort of punitive point system.) I collect graded lab reports/notebooks to prevent plagiarism. (This is a common practice at most colleges.)

**Only one missed lab may be dropped during the semester.**

D. The policy concerning eye protection in the laboratory is as follows:

For proper eye protection ALL students enrolled in chemical laboratory courses are REQUIRED to wear **chemical safety goggles** which meet college requirements for impact and splash protection. The safety goggles must be worn by everyone including those who normally wear glasses and those who wear contacts. Those students who wear contacts but do not have eyeglasses may wear contacts in the laboratory with a **label** on the safety goggle so indicating. Please ask Dr. Hahn for these labels.

The ACS Committee on Professional Training specifies:

Anyone working or visiting in the lab must be wearing goggles, and consumption of food or drinks must not be permitted. A clean, uncluttered laboratory is more likely to encourage careful work.  
Laboratory Safety, 2012

E. All students must have on file in the department a signed statement agreeing to abide by all departmental safety regulations including rules on clothing and must agree to abide by the departmental eye-safety rules. **Safety Take Home Quiz and Safety Contract** will be provided at the first day of lab and must be completed and turned in before the first lab experiment starts.

Please note: **Policies and rules from other semesters do not apply to the policies and rules for this semester.** If you follow the policies and rules for another semester (with a different professor) in this lab class, you may lose a lot of points needlessly.

**Example:** Your friends (or even a tutor) tell you that there is no penalty for turning in lab reports late so you just hold onto 3 of your lab report forms until the end of the semester. My syllabus states that you lose 20% for every business day that you turn in the lab report late. So when you turn in your 3 late lab reports, you only earn 3/10 on those 3 lab reports. 3/10 is 30% or failing on those 3 late lab reports.

In general you drop down by about a letter grade for each **zero** lab report.

## Tentative Laboratory Schedule:

The laboratory experiments to be completed during the semester are listed opposite the scheduled date. (R = Thursday)

8/10 R .....	discussion class syllabus
8/17 R .....	safety, check in (lab 1)
8/24 R .....	math review (lab 2)
8/31 R .....	density (lab 3)
9/7 R .....	Labor Day Week, no lab
9/14 R .....	chemical / physical change (lab 4)
9/21 R .....	molarity lab (lab 5)
9/28 R .....	Fall Break Week, no lab
10/5 R .....	Feast Week – no lab
10/12 R .....	Reaction (lab 6)
10/19 R .....	molecular models (lab 7)
10/26 R .....	(lab 8) review for lab final, return last graded lab
11/2R .....	lab final exam

## Important Dates & Holidays

9/4 Monday Labor Day Holiday, no classes

9/28 Thursday to 10/1 Sunday – Fall Break (no classes)

10/3 Tuesday - last day to withdraw

10/6 Friday Feast of Ingathering [Feast Week Schedule 4<sup>th</sup> period class (11-11:50 MWF) meets MTW, Friday 3<sup>rd</sup> period class (10-10:50 MWF class) canceled for Feast Week Schedule]

10/27 F – 10/29 Sun - Homecoming

11/15 Wednesday - last class meeting of the semester

11/16 Thursday – 11/21 Tuesday - Final Exam Period

11/22 Wednesday – 1/3/18 – Christmas Holiday

**Syllabus Agreement Form, Information Sheet & Permission to return:**

I have read and understand the policies stated in the syllabus for Dr. Hahn's CHM 220 Lab class for the Fall 2017 semester. All questions have been answered to my satisfaction. By signing this sheet I agree to abide by the policies stated therein. (You must provide a separate form for the lab.)

Your signature \_\_\_\_\_ Dr. Hahn CHM 220 Lab Fall 17

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

\*\*\*Information Sheet [(R 12:30 pm section) (R 2:30 pm section)(R 4:30 pm section)] (circle one section)

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 form

I [(do) or (do not)] (circle one) give Dr. Hahn permission to return my actual graded lab reports & exams in a self serve fashion.