

Departmental SYLLABUS

General Chemistry II (CHEM102) *Spring, 2020*

1. Course Objectives Students successfully completing General Chemistry II (Chemistry 102) will demonstrate a fundamental understanding of

- a. the physical properties of solids, liquids, gases, and solutions. Also, the various expressions of concentration of solutions.
- b. chemical kinetics, rate law expressions, and the experimental parameters that they depend upon.
- c. chemical equilibria and how it applies to reactions, acids and bases, and solubility.
- d. entropy, free energy, and the second law of thermodynamics
- e. electrochemistry, and its application to redox reactions, electrolytic and Galvanic Cells.
- f. nuclear chemistry of fission, fusion, and radioactivity decay.

2. Textbook and Course Resources

Chemistry, 7th edition, by John McMurry, Robert Fay, and Jill Robinson.
moodle.presby.edu, PC's online learning site

3. Grading System

<u>Class Grade</u>	<u>Class Average</u>
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

will follow this scale exactly – same as last semester

<u>Factors affecting class average</u>	<u>Factor Weight</u>
Quizzes/Homework	10%
Major Tests (4)	65%
Examination	25%

Departmentally Determined – all sections are doing this-same as last semester

4. Lecture Schedule

<u>Textbook Chapter</u>	<u>Topics (in order of development)</u>
9	Thermochemistry
11	Liquids, Solids, and Phase Changes
12	Solutions and Their Properties
13	Chemical Kinetics
14	Chemical Equilibrium
15	Aqueous Equilibria: Acids and Bases
16	Applications of Aqueous Equilibria
17	Thermodynamics: Entropy, Free Energy, and Equilibrium
18	Electrochemistry
19	Nuclear Chemistry
	- Selected Sections of Remaining Chapters -

start with chapter 9,
covered chapter 10
(gases) last semester

5. Test dates

Hour Tests are given in class during the scheduled class time. The Final Exam is given in the classroom during the Final Exam Period time slot. There are no exemptions from the Final Exam.

<u>Tests/Exams</u>	<u>Period A (Hahn)</u>	<u>Period C (Hahn)</u>	<u>Period D (Miller)</u>	<u>Period F (Miller)</u>
Test 1	Wednesday, 1/29	Wednesday, 1/29	Thursday, 1/30	Friday, 1/31
Test 2	Wednesday, 2/19	Wednesday, 2/19	Thursday, 2/20	Friday, 2/21
Test 3	Wednesday, 3/18	Wednesday, 3/18	Thursday, 3/19	Friday, 3/20
Test 4	Friday, 4/17	Friday, 4/17	Monday, 4/20	Monday, 4/20
Final Exam	Fri., 5/1 (1:30 PM)	Mon., 4/27 (5:30 PM)	Thurs., 4/30 (8:30 AM)	Wed., 4/29 (1:30 PM)

can take tests in either A or C section times – just
get prior permission by emailing me

6. Other Announcements

- a. A copy of the **PC Chemistry Department's class ATTENDANCE POLICY** is shown in the following pages. **All students are expected to read, understand, and comply with the policy.**
- b. Students are required to procure and use electronic calculators for Chemistry 102. Power for calculators is each student's responsibility and **will not be provided** by the P.C. Chemistry Department.
- c. The four, in-class **tests will each consist of 15 multiple choice-type questions (4 pts. apiece, 60% of test score) and Short Answer questions (remaining 40% of the test score).** Students will be allowed to bring in **one 3"x 5" index card**, containing whatever information they wish, for each "hour" test.
- d. The Department of Chemistry upholds the college's Honor Code as described in the *PC Blue Book* and the Student Life Regulations and Policies as described in the *Knapsack*. Chemistry students are expected to read, understand, and abide by these documents.
- e. The **Final Exam** for General Chemistry II (CHEM 102) will be **cumulative for the entire semester.**
- f. A list of chapter sections not covered in the course is attached to this syllabus (Paragraph 7)
- g. **Students with disabilities:** If you are seeking academic accommodations under the Americans with Disabilities Act, you must register with the Academic Success Office, located on 5th Avenue (beside Campus Police). To receive these accommodations, please obtain the proper **Accommodations Approval Form** from that office, and then meet with me at the beginning of the semester to discuss how we may deliver what is indicated on that form. Disability Services information is located at this link <http://bit.ly/PCdisabilityservices>
- h. As a courtesy to the instructor and other students in the class, **PLEASE MUTE OR TURN OFF ALL PERSONAL ELECTRONIC DEVICES**, including cell phones, pagers, Blackberry's, iPods, etc. before the beginning of class.

7. Chemistry 102 Coverage

Textbook Chapter	Omission(s)
9	Omit section 9.11
11	Omit Clausius-Clapeyron and Bragg equations
12	Omit section 12.9
13	Omit section 13.7,13.8
14	- no omissions -
15	Omit section 15.11
16	Omit sections 16.9 and 16.13-16.15
17	Omit section 17.3
18	Omit section 18.7 and 18.8
19	- no omissions -

CHEMISTRY DEPARTMENT ABSENCE POLICY

OFFICIAL RECORD OF ATTENDANCE: Each course instructors' attendance record will be the official record of attendance for all enrolled students. **Hardcopy sign in sheet – both A and C sections on same sheet**

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 Lecture :

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

CHEM 102 A MWF 8 to 8:50 am Richardson 315

CHEM 102 C TWF 9 to 9:50 am Richardson 315

office hours: M 9 to 10 am, T 10 to 10:50 am, W 10 to 11 am, W 2 to 4 pm (other times by appointment)

I usually sit in my office during normal business hours with my office door wide open. You are welcome to drop by to ask a quick question.

For the Lecture you will need access to: (a) **Textbook**, Chemistry (7th edition) by McMurry, Fay, Robinson (ISBN 978-0-321-94317-0, publisher Pearson) 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. 6.02×10^{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 & major test and final exam. You can use a cell phone as a calculator on the HW in class.

I will post Powerpoints and Quiz & Test Answer Keys on my website at: <http://JulietHahn.com> (I may also post on Moodle.) (If you want to see how things went last semester, you are welcomed to go to my website and look at Powerpoints, quizzes and exams from the Fall 2019 semester.)

Chemistry 102 is the second semester of a two semester sequence of General Chemistry lecture. We will cover about half the chapters in the text this semester at the rate of **about a chapter a week**.

Students in **my sections of the General Chemistry II Lecture may attend either of my 2 sections on any given day**. (provided there is room for you to come to the other section) I will be keeping a hard copy attendance sheet which will have all my sections students listed. **(Please note the departmental attendance policy which states that a student who misses more than 10 days of class may be dropped from the class with an F. Students who miss lots of classes usually earns an F on the class even without being dropped from the class.)** On test/quiz days, email **notify me & confirm** at least a day in advance if you want to **take the test /quiz in a different section of the General Chemistry II lecture**. I may run out of tests / quizzes without prior notification. If you try to take the test/quiz in the wrong section without prior notification, I may not allow you to take the test/quiz if I run out of tests or space. If I do not run out of tests/quizzes (& space), I will probably let you take the test/quiz in the wrong section even without prior notification. (i.e. It is probably **not** a good idea for you to try to take the test in the wrong section around the Easter holiday without prior

notification because everyone else may have the same idea. I may run out of tests/quizzes and **you may end up with a zero on the test.**)

Grades are based on the following:

<u>Factors affecting class average</u>	<u>Factor Weight</u>
Quizzes & HW in class	10%
Major Tests (4)	65%
Final Examination	25%

Quiz & HW grade (10% of grade): The 10% of grade will be made up of 100 pts total. For the 100 pts total each quiz will be worth 10 pts x 8 = 80 pts + homework in class (total worth 20 pts) **Quiz and HW could be the 10% that separates an A from a B or a C from a D. (80 pts quiz + 20 pts HW) = 10% of grade**

Quizzes will be in the same format as a major test but shorter in length (probably one or at most 2 pages).

Quizzes will be like a traditional test so **not open book, not open notebook, not open neighbor** with no assistance from Dr. Hahn. (You may have a **3" x 5" index card** for the quizzes.)

HW (Homework In class) grade will be in the same format as a quiz but consist of 5 to 10 minutes of in class work on a problem given in class. **HW will be open book, open notes, open neighbor with Dr. Hahn's help.** **If you are in class and turn in an attempted HW in class, as long as the attempt was serious I guarantee no less than 80% on the HW grade.** Typically my HW grade is very high because of the format of the HW. **(My suggestion: students who attend and work through all HW in Class usually get the best grades. I will not penalize students who miss HW in class (because of unexcused absence) but it is in your best interest to not miss these if at all possible. PC Chemistry Department attendance policy will be followed in this class so multiple unexcused non attendance could result in an F grade.) HW IN CLASS must be completed IN CLASS.** (There are approximately 40 lecture days this semester. So you will likely get at least 40 HW in class to as many as 80 HW in class this semester. Keeping track of excused/unexcused absence for the HW in class was too much book keeping last semester with various excused absences documentation.)

I will also assign homework to be done on your own (from the textbook homework which has answers in the back of the book). I will not collect these and there are no explicit points associated with these but if you are trying to get the best grade, you will really learn the material if you do these.

If you **miss TWO Quizzes for any reason**, two and only two quiz grades **will be replaced by the HW (homework in class) average grade.** If you **TAKE ALL QUIZZES**, your **lowest 2 quiz grade will be replaced by the homework in class grade.** Since I need to return and cover the quiz before the exam, if you miss the quiz (immediately before the test) and you want to make up the quiz, it will have to be taken after the corresponding exam that comes after the quiz and will be a totally different quiz than the quiz that everyone else took. You may **request to take a makeup quiz for any reason as long as you do it within 7 calendar days of return to campus** (unless it is one of the 4 quizzes a day before the tests). (ex: Q1 & Q2 goes with Test 1; You can only do quiz 1 & 2 makeup quiz prior to Test 1. After Test 1 or **after I post the answer key to the quiz, if you request makeup quizzes, it will be very different from the quiz** that everyone else in class took.) If you have an **excused absence** for missing a quiz and was unable to do a makeup quiz, I will average and plug in a

grade. If it is an **unexcused absence and you were unable to do a make up quiz, you will earn a zero.** [ex: plug in grade : missed Q2 / your own average quizzes = class average Q2 / class average all quizzes]

If you **miss a major test** (one of 4 tests) for any reason, notify me ASAP (prior to missing test if you know ahead of time) and **within one week (7 calendar days)** of returning to college. I will give you a **make up test** (different from the test that everyone else took) at a mutually agreed upon time. After a week of return, for an excused absence, I will average and plug in a grade (from average of other tests – see example above for quiz) or for an unexcused absence, you will earn a zero on the missed test.

There will be **8 quizzes** which will be given in the last 15 minutes of class.

Quiz Dates: {one will be usually 2 days before tests so (a) take quiz (b) get back graded quiz in the next class period, ask questions and make sure everyone understands quiz material (c) take test at next class period} Do not miss the day immediately before the tests when I return quizzes. I usually give pointers for what to study for the upcoming test. (There will be either a quiz or test about once a week.)

<u>Period A Test Dates</u> <i>(Hahn)</i>	<u>Period C Test Dates</u> <i>(Hahn)</i>
Test 1: W, 1/29	Test 1: W, 1/29
Test 2: W, 2/19	Test 2: W, 2/19
Test 3: W 3/18	Test 3: W, 3/18
Test 4: F, 4/17	Test 4: F, 4/17
Final Exam F, 5/1 (1:30 PM)	Final Exam: M, 4/27 (5:30 PM)

<u>Period A, C Quiz Dates</u> <i>(Hahn)</i>	<u>Period A, C Quiz Dates</u> <i>(Hahn)</i>
Quiz 1: W, 1/15	Quiz 2: F, 1/24 (2 days before test 1)
Quiz 3: F, 2/7	Quiz 4: F, 2/14 (2 days before test 2)
Quiz 5: F, 2/28	Quiz 6: F, 3/6 (2 days before test 3)
Quiz 7: W, 4/1	Quiz 8: W, 4/8 (2 days before test 4)

When you get back your graded quizzes and tests you will also **get an answer key** with a list of points for common mistakes (posted online). Check your graded test/quiz against the answer sheet. **Help me by checking for human error.** You will get to **keep your tests, quizzes & HW to study** so that you learn from your mistakes. You will get partial credit for short answer questions.

If there are any mistakes on the graded exams any **requests for regrades must be made during the class in which the test, quiz or HW is returned in writing.** Once you leave the class, any requests for regrades will **not** be honored. (Note: If my answer keys says that everyone with a particular error lost a certain number

of points, if you request a regrade asking for more points for the same error, there will be no points added during the regrade.)

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 (or emailed) 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 (even if your excuse is not listed above).

Chemistry is not some far away, antiseptic, horrible, technological monstrosity of the 21st century and chemicals are not some maiming, toxic substance from which we all have to keep a distance. Modern society would not be possible without chemistry. Chemistry gives us all pharmaceuticals, all synthetic materials (polyester, nylon, plastics, teflon, styrofoam, perfumes, rubber, nutrasweet), batteries, the ink in your pen, liquid crystals in your LCD watches & in your flat panel TVs. Chemicals also makes up the bodies of all living organisms. Everything that you eat are chemicals. Chemicals are everywhere!

Chemistry is also the required **general education classes for high paying jobs such as: **pharmacist, medical doctor, physician's assistant, engineer, research scientist, nurse****

Just keep in mind that **no matter how smart you are**, you will not do well on this course without a **lot of hard work**. The grade that you earn in this class will be directly related to how much time you spend preparing for the class.

The biggest secret to doing well in this course is to **keep up with the lecture material.** The biggest mistakes that students make which results in a bad grade in the course are: **1) not attending** the lecture **2) not keeping up with the lecture material and attempting to **cram the night before** every exam** **3) thinking that just understanding the lecture material means that you will do well on the course – **you have to actually work at least the problems on the quizzes**** prior to the exam, the example worked problems from the lecture and the **HW** problems. When I say you have to work the problem, I mean that you have to do the problems including the final plugging in of the numbers into the calculator to obtain the final correct answer. **Just looking at the worked problem and sort of understanding it does not count as having done the problem.** If you make one of these three common mistakes, you will not learn anything. (You will also get a bad grade on this course.) General Chemistry is going to be a lot of work. **(If General Chemistry is not a lot of work, then you may be doing something wrong and your grades may reflect this.)**

Also note that textbook test bank Multiple Choice questions ask you to think through to the answer and are often NOT just straight memorization of the example in the textbook kind of questions. The idea is to understand the lecture, lecture examples and have enough practice (HW, extra HW from textbook) so that if you are asked questions about the idea in a totally different way in a multiple choice format, you are able to logically think through to the answer. This (asking you to **logically think through to the answer rather than memorizing something from your class lecture**) is also true for questions on the ACT, SAT, MCAT, PCAT, LSAT, etc. Also your professors at PC do not write the questions on MCAT, PCAT, LSAT, etc.

One final point, my objective is to teach General Chemistry to everyone in this class. **I want you ALL to do well because you are my students.** If you have any difficulties, please come to see me before your difficulties cause irreparable damage. I may be able to advise you on how to best study for this class so that you spend your time for the best effect. Do not just stop trying without coming to see me first.

Important Dates & Holidays

1/6 Monday	Regular Class Schedule Begins
1/10 Friday	last day for late registration or drop/add
1/20 Monday	Martin Luther King, Jr. Holiday (no classes)
1/31 Friday	Incomplete Grades for Fall Due to Registrar
2/25 Tuesday	Assessment Day (no classes, afternoon labs may meet)
2/28 Friday	Mid Term Grades Due by 9 am
3/9 Monday & 3/13 Friday	Spring Break (no classes)
3/27 Friday	last day to drop class with a grade of W
4/10 Friday to 4/13 Monday	Easter Holiday (no classes)
4/24 Friday	Last Day of Classes
4/27 Monday to 5/1 Friday	Final Exams
5/4 Monday	Final Grades Due at 9 am
5/9 Saturday	Residential Halls Close for All Students

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 Lecture** 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 Lecture Spring 2020**

Print your name: _____ Date submitted: _____

I am in the [(MWF 8 am) (TWF 9 am)] (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 - 40 HW, 8 Quizzes, 4 Tests - 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.)**