CHEM 023/025: OUTLINE OF GENERAL CHEMISTRY

Fall 2022

LECTURE A: CHEM 023 (90035) & CHEM 025 (90471), M,W,F 8:30AM-9:20AM, Innovation E102

LECTURE B: CHEM 023 (90626) & CHEM 025 (90472), T,Th 8:30AM-9:45AM, Votey 105

GENERAL INFORMATION: (see also the CHEM 023 BlackBoard page)

Instructor: Steve Flemer **email**: sflemer@uvm.edu

Office: 331 Innovation

Office Hours: Mon, Wed, Fri: 9:30-10:30AM In-person: 331 Innovation
Tue, Thurs: 10:00-11:00AM In-person 331 Innovation

If the following office hour times do not work for your schedule, please email me to try to set up a virtual office hours session on Teams.

Lecture: The lecture will primarily be used to cover new material. Included in this syllabus is a tentative schedule covering the class material and the general flow of how the course is laid out and assessed.

Exams: Three 2-hour exams are given on Thursday nights from 6:00-8:00 PM.

	Lecture A (M,W,F section)	**Lecture B** (T,Th section)
Exam 1	Thurs, Sept. 22; Billings Lecture Hall	Thurs, Sept. 22; 301 Williams
Exam 2	Thurs, Oct. 20; Billings Lecture Hall	Thurs, Oct. 20; 301 Williams
Exam 3	Thurs, Nov. 17; Billings Lecture Hall	Thurs, Nov. 17; 301 Williams
Final Exam	Mon, Dec. 12; 7:30-10:15AM; Innovation E102	Tues, Dec. 13; 7:30-10:15AM; 105 Votey

Absences from exams: Students with legitimate excuses (ie: a UVM-related conflict) may be permitted to take an exam sometime during the day that it is given to the rest of the class that evening. This must be cleared with the instructor first, however. **Makeup exams will only be administered after the scheduled exam time if a medical or family** emergency precludes taking the exam at the scheduled time.

Review Sessions: I will be holding Exam Review Sessions the Wednesday evenings prior to impending exams. Weekly SI sessions will also be starting shortly after the beginning of classes. Firm dates for these Review Sessions and SI sessions will be announced.

Problems: Exam questions will be modeled very closely to the type of problems you will encounter in the Practice Problems of each unit of study posted on BlackBoard. Solutions to all of these problems are included in these documents. While it is strongly suggested that you do as many problems as possible, the problems are not collected or graded.

Weekly Blackboard Quizzes: Each week, you will be responsible for taking a short online BlackBoard quiz covering the class material from the current week. Just click on the "Weekly Quiz" link on the left hand side of the CHEM 023 BlackBoard page and follow the instructions. These quizzes are open-book, but must be completed independently. Weekly quizzes will be available to take until midnight of the Sunday prior to a new week of classes. A skipped or a missed quiz is given a zero.

REQUIRED COURSE MATERIALS:

Text: There is no textbook for the course. Each unit of study has a corresponding folder in the Course Materials section of the course's BlackBoard site, within which are educational notes for that unit. These notes, while helpful for following along with the material, should not be thought of as comprehensive. Your own written class notes should be the basic core of your study materials.

Scientific Calculator: A standard scientific calculator is a requirement for the exams.
Note: Graphing calculators are not allowed on exams.

Lab Manual: Available for download from the class' BlackBoard site.

Bound Laboratory Notebook: Available at the UVM Bookstore. Required for recording data.

(Note: the last two items are not required for CHEM 025 students)

Inclusion Statement: I want everyone to be successful and fulfilled in this course. As such, I do not play favorites and treat every student with the same respect we all deserve from one another regardless of who you are, what you look like, and what your beliefs are. We are here to master general chemistry, and I will do everything in my power toward your success in the course.

Academic Integrity: Offenses against the Code of Academic Integrity (ie: Cheating) are deemed serious and insult the integrity of the entire academic community. Any suspected violations of the code are taken very seriously and will be forwarded to the Center for Student Ethics & Standards for further investigation.

LABORATORY: (labs start 2 weeks after classes begin)

Time and Room: See your class course schedule as to your assignments.

Attendance: Students must attend the lab section they are assigned to. Official documentation of sickness or family crisis is required if a lab is missed. **If more than 2 labs are missed, this results in a failure for the course.** In order to take a lab at a time other than your assigned time one must obtain the permission of the TA and instructor.

Online Lab Safety Quiz: Prior to the lab sessions beginning, students must read through Lab Safety documentation and take a one-time online quiz before being allowed into their lab session. Just click the "Lab Safety" link on the left hand side of the CHEM23 BlackBoard page and follow the instructions. Students must score an 80 or better on the quiz to be admitted to lab. If you choose, you may take the Lab Safety quiz as many times as you want in order to maximize this score, as it will also count as your first lab quiz grade.

Lab Safety considerations & Gear: OSHA approved safety glasses or goggles (available at the UVM Bookstore) must be worn by everyone once any experimentation has started in any area of a lab room. Only shoes that cover the toes are permitted in the lab. Sandals and open-toed shoes are not permitted.

Lab Schedule:

Date	Experiment Description
12 – 14 SEPT	**CHECK-IN** & Densities of Common Substances
19 - 21 SEPT	Determination of Heat Capacity Using Calorimetry
26 - 28 SEPT	Qualitative Analysis
3 - 5 OCT	Synthesis of Ionic Compound Alum from Aluminum Metal
10 - 12 OCT	Determination of a Compound's Empirical Formula
17 - 19 OCT	Reaction Stoichiometry & Equation Balancing
24 - 26 OCT	Determination of Limiting Reactant
31 OCT - 2 NOV	Determination of Acid Content in Pickle Juice using Titration
7 - 9 NOV	Determination of Limestone Content in Soil using the Ideal Gas Law
14 – 16 NOV	Acid-Base Equilibria and Buffers & **LAB CHECK-OUT**

COURSE GRADE FOR CHEM 023 STUDENTS:

1. Points needed to obtain a specific grade

920 = A	870 = B+	790 = B-	680 = C	620 = D+	570 = D-
900 = A-	820 = B	760 = C+	650 = C-	590 = D	less than 570 = F

Class = Out of 800 possible points:

Exam 1:	100	excluding lowest score = 300 points possible for tests
Exam 2:	100	(I will drop your lowest semester exam/quiz score before calculating course grade)
Exam 3:	100	
Quiz Average:	100	

Final Exam:	100	= 100 points possible for final exam
Attendance:	100	= 100 points possible for attendance

500 points

(x 1.6) = 800 points possible for lecture points

The 1.6 multiplication factor is because each graded component is only worth 100 pts, and thus the maximum number of points obtainable from the tests is 500. After factoring in attendance, in order to raise this to 800 pts you must multiply the total x 1.6 = 800.

Laboratory: = 200 points possible for lab points

(your lab TA will go over the specific grade breakdown for lab)

Example Course Grade:

	Exam 1	Exam 2	Exam 3	Quiz av	Final.	Attendance
Actual Scores	85	45	78	77	75	80
Scores Counted	85		78	77	75	80

Total class points = 395 x 1.6 = **632 Class points**

Lab points = 160 = **160 Lab points**

792 total points = B- for the course

COURSE GRADE FOR CHEM 025 STUDENTS:

Since there is no lab component to your grade, you will be graded on your exam/quiz scores exclusively. Your 4 highest scores plus attendance will be multiplied by 2 (rather than 1.6).

TENTATIVE LECTURE SCHEDULE

UNIT 1 (Measurement & Problem Solving)

UNIT 2 (Matter & Energy)

UNIT 3 (Atoms & Elements)

Exam 1 (Thursday, Sept. 22; 6:00-8:00PM)

UNIT 4 (Electrons in Atoms)

UNIT 5 (Chemical Bonding)

UNIT 6 (Molecules & Compounds)

UNIT 7 (Chemical Composition)

Exam 2 (Thursday, Oct 20; 6:00-8:00PM)

UNIT 8 (Chemical Reactions)

UNIT 9 (Quantities in Chemical Reactions)

UNIT 10 (Solutions)

UNIT 11 (Gases)

UNIT 12 (Liquids, Solids, & Intermolecular Forces)

Exam 3 (Thursday, Nov 17; 6:00-8:00PM)

UNIT 13 (Acids & Bases)

UNIT 14 (Chemical Equilibrium)

Final Exam (Cumulative)