CHEM 23/25: OUTLINE OF GENERAL CHEMISTRY

Fall 2017

LECTURE A: CHEM 23 (90046) & CHEM 25 (90683), M,W,F 8:30AM-9:20AM, Marsh Life Sci 235

LECTURE B: CHEM 23 (90889) & CHEM 25 (90684), T,Th 8:30AM-9:45AM, Votey 105

GENERAL INFORMATION: (see also the CHEM23 BlackBoard page)

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

Office: 110 Hills **Office Hours**: M W F 9:30 AM - 10:30 AM
T Th 10:00 AM – 11:00 AM

Lecture: The lecture will primarily be used to cover new material. Included in this syllabus is a tentative schedule covering the text material and the corresponding problems to be worked from each chapter.

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

	Lecture A (M,W,F; 8:30-9:20 AM)	**Lecture B** (T,Th; 8:30-9:45 AM)
Exam 1	Thurs, Sept. 21; Billings Lecture Hall	Thurs, Sept. 21; 101 Fleming
Exam 2	Thurs, Oct. 19; Billings Lecture Hall	Thurs, Oct. 19; 101 Fleming
Exam 3	Thurs, Nov. 16; Billings Lecture Hall	Thurs, Nov. 16; 101 Fleming
Final Exam	Friday, Dec. 15; 7:30-10:15AM; 235 Marsh	Tuesday, Dec. 12; 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 Wednesdays prior to impending exams from 5:00-6:30PM in 207 Lafayette. Weekly SI sessions will also be starting shortly after the beginning of classes. Firm dates for these SI sessions will be announced.

Problems: Exam questions will be modeled very closely to the type of problems you will encounter on class exams and quizzes. Solutions to most of these problems are in the back of the text. While it is strongly suggested that you do as many problems as possible, the problems are not collected and do not count towards your grade

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 CHEM23 BlackBoard page and follow the instructions. These quizzes are open-book, but must be completed independently. Weekly quizzes will be available to take until 5:00PM of the Sunday prior to a new week of classes. A skipped or a missed quiz is given a zero.

REQUIRED TEXTBOOKS:

Text: "Introductory Chemistry" 5th edition, by Nivaldo J. Tro (ISBN: 9780321910295).

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

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 25 students).

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.

Safety Eyewear: OSHA approved safety glasses or goggles (available from the first floor stockroom or at the UVM Bookstore) must be worn by everyone once any experimentation has started in any area of a lab room.

Foot Wear: Only shoes that cover the toes are permitted in the lab. Sandals and open-toed shoes are not permitted.

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.

COURSE GRADE FOR CHEM 23 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

2. How to calculate your points:

a) **Class = 800pts** 3 Exams/1 quiz grade = 4 grades
1 Final = 2 grades
6 grades - 1 grade = 5 grades x 1.6 = class pts

I will drop your lowest score. If the final exam is your lowest grade it will only count once. If your quiz average is your lowest grade, this score will be your drop. The 1.6 factor is because each test was only worth 100 pts, and therefore the maximum number of points obtainable from the tests are 500. In order to raise this to 800 pts you must multiply the 500 x 1.6 = 800.

Example:

	Ex-1	Ex-2	Ex-3	Quiz Av.	Final x 2
Actual Scores	85	45	78	77	75 75
Scores Counted	85	75	78	77	75

Total pts = 390 x 1.6 = 624 pts from class

b) **Laboratory = 200 pts**

Notebook / Prelab	30 pts
Lab reports	80 pts
Quizzes	65 pts
Technique	25 pts
	200 pts

3. Determination of grade: Add up your points from the class and lab and then use the chart at the beginning to determine your course grade.

Example: 624 class pts + 160 lab pts = 784 total pts = C+

COURSE GRADE FOR CHEM 25 STUDENTS:

Since there is no laboratory component to your grade, you will be graded on your exam/quiz scores exclusively. Your 5 highest scores will be multiplied by 2 (rather than 1.6).

LABORATORY SCHEDULE

Date	Experiment Description
11 – 14 SEPT	**CHECK-IN** & Densities of Common Substances
18 - 21 SEPT	Determination of Heat Capacity Using Calorimetry
25 - 28 SEPT	Qualitative Analysis
2 - 5 OCT	Synthesis of Ionic Compound Alum from Aluminum Metal
9 - 12 OCT	**NO LABS** (Fall Recess on Monday)
16 - 19 OCT	Determination of a Compound's Empirical Formula
23 - 26 OCT	Reaction Stoichiometry & Equation Balancing
30 OCT – 2 NOV	Determination of Limiting Reactant
6 - 9 NOV	Determination of Acid Content in Pickle Juice using Titration
13 - 16 NOV	Determination of Limestone Content in Soil using the Ideal Gas Law
20 – 23 NOV	**NO LABS** (Thanksgiving Break)
27 – 30 NOV	Acid-Base Equilibria and Buffers & **CHECKOUT**

TENTATIVE LECTURE SCHEDULE

CHAPTER	SUGGESTED PROBLEMS
2 (Measurement & Problem Solving)	5,27,29,31,35,39,43,47,55,59,67a,c,73,79,83,91,93,103,107,115
3 (Matter & Energy)	11,13,15,21,31,33,35,39,47,59,63,71,75,77,81,89,93,103
4 (Atoms & Elements)	35,43,45,47,49,51,53,59,61,77,79,89,93,97,107
9 (Electrons in Atoms & the Periodic Table) (9.4, 9.6-9.9)	25,27,51,53,55 a,c,d,57,59,71,75,77,81,85,91,93,95,99
22 SEPT.	**EXAM 1**
10 (Chemical Bonding) (no 10.6)	27,29,33,35,39,43,47,50bcd,61,63,67,69cd,73,79,83,85,87bcd,91,99
5 (Molecules & Compounds: 5.1-5.8, 5.10)	25,33,35,53,55,57,59,61,65,69,71,75,81ab,82a,93,95
6 (Chemical Composition)	7,13,19,25,27,29,30,37,45,49,59,65,73,79,81,85,89,95,97,99,103,115
7 (Chemical Reactions: 7.1-7.4, 7.10)	47,49,50,51,52,53,54,55,91,92,101 a,b,d,102
8 (Quantities in Chemical Reactions)	7,9,17,23,25,31,33,35,41,43,45,55,57,61,63,65,73,75,103
20 OCT.	**EXAM 2**
13 (Solutions)	4,7,19,29,41,45,61,65,69,73,79,85,87,91,95,97,99,101
11 (Gases)	27,33,37,39,43,45,53,59,61,65,69,71,77,83,89,91,93,97,101,105
12 (Liquids, Solids, & Intermolecular Forces)	9,17,19,23,24,25,29,31,33,41,43,47,49,57,59,63,65,69,71,73,75,79,81,83,85,91,95,96
17 NOV.	**EXAM 3**
14 (Acids & Bases)	11,17,19,23,31,32,39,59a,61,63,65,67,69,71,73,75,79,81,83,85
15 (Chemical Equilibrium:15.1-15.10, 15.12)	5,7,13,19,21,43,45,47,49,51,53,57,59,61,63,65,71,75

FINAL EXAM (Cumulative)