CHEM 31A (90285): General Chemistry Fall 2013

I. Lecture

Lecturer: Erik Ruggles, Ph.D. **Office:** A237 Cook

Email: Erik.Ruggles@uvm.edu **Office Hours:** M W F: 10:30 – 11:30 am
W F: 1:00 – 3:30 pm
T Th: 9:30 – 11:30 am
or by appointment

Lecture Time: M W F 9:35 – 10:25 am **Location:** Angell B106

Lecture: The lecture each week will be used primarily to cover new material. Included in the syllabus is a schedule covering the topics of the lecture, reading material, and homework problems. My class lecture notes for the entire semester are posted on Blackboard.

Textbook: "Chemistry, A Molecular Approach" 3nd Ed., by Nivaldo Tro can be purchased at the UVM bookstore (2nd Custom Edition). The solutions manual comes with the text and has the complete solutions to all the assigned problems. The study guide while not required can be a great help during problem solving.

Problems: Answers to problem sets and exercises are in the solutions manual. I will cover assigned problem sets during Tuesday recitations. I strongly encourage you to do as many problems as possible. The problems combine mathematics with scientific concepts and are challenging, so the more you practice the better you will get. Blank old exams from my 2011 and 2012 General Chemistry classes as well as their answer key are posted on Blackboard. These are a great way to evaluate what you understand and what you do not. Remember though that test questions will change but the format and concepts will remain the same.

Recitations: You will be assigned to a mandatory recitation session. Students must attend the recitation section they are assigned to. If more than two recitations are missed, unexcused, you will receive an **F** for the course. Throughout the semester I will also hold recitations on Tuesdays evenings from 7:00-8:00 pm in Angell B106. Also the Sunday before a mid-semester exam I will hold an exam review session from 7:00-9:00 pm in Angell B106. Also, the class before the exam a review session will be held instead of the standard lecture. These problem sessions are meant to address your questions about lecture topics and/or homework problem solving, so come prepared.

Exams: The exams are scheduled to be ***Tuesday evenings from 7:00-9:45 pm in Angel B106 (Last Name: A—K) or Billings-Ira Allen Lecture Hall I101 (Last Name: L—Z)***. There are no scheduled make up dates. While taking the exams only non-programmable non-graphing calculators are permitted. No other electronic devices are allowed (i.e. no cell phones, mp3 players, ipods, etc.). It is the responsibility of the student to bring a non-programmable non-graphing calculator to the exams, since there will be no extras provided. ***Students caught using any other electronic device other than a non-programmable non-graphing calculator will receive a zero for the exam.***

Exam Dates:	September 17	Chapters 1, 2, 3, 4 (sections 1-6), 9.6
	October 8	Chapters 5, 6
	October 29	Chapters 7, 8, 9.1-9.3, 9.5-9.9
	November 19	Chapters 10.1-10.8, 9.4, 9.10, 11
	December 9	**Final Exam** (*cumulative*) Angell B106 1:30-4:15 pm

II. Laboratory

Lab Manuals: "Chemistry 31, Experiments", which is sold in the first floor stockroom in Cook (A143) for $15.00.

Lab Notebook: A notebook with carbon-less copies is required for recording lab data. All data is to be recorded in ink (not pencil). A carbon-less copy lab notebook can be bought at UVM's bookstore.

Safety Eye Wear: Everyone in the lab must wear OSHA approved (EZ87stamped) safety glasses or goggles once any experimentation has been started. Students not observing this rule will receive a **ZERO** for the experiment, warnings will not be given. Safety eyewear can be purchased at the UVM bookstore or in Cook A143. ***Contact Lenses are a potential health hazard and can be worn in the laboratory only if no other types of corrective lenses are available. If you have to wear contact lenses then you must wear goggles and please let your TA know.***

Footwear: Only shoes that cover fully the toes are permitted in lab. Sandals, flip-flops and any other open toed shoes are not permitted. You will be asked to change your shoes or receive a **ZERO** for the experiment.

Breakage Card: A breakage card ($40.00) must be purchased prior to your first lab from the first floor stockroom in Cook A143. It is advisable to purchase this as soon as possible to avoid waiting in yet another line. The $40.00 is refundable and if you avoid breaking your equipment you will get all of it back. Remember to not leave home without it, as you must have it with you to be admitted into the lab.

Prior to Start of Lab: Purchase your lab manual, lab notebook, breakage card, and safety glasses. Also, on Blackboard review and complete the Safety Presentation and Safety Quiz. ***If you have not purchased or completed these items you will not be able to begin the lab portion of the course.***

Attendance: Students must attend the lab section they are assigned to. If more than two labs are missed you will receive an **F** for the course. Only the academic dean of your college may grant an incomplete. An unexcused absence will result in a **ZERO** grade for the laboratory experiment. Official documentation of sickness or a family crisis is required for an excused absence. If there is a need to reschedule your lab time to one that is not your assigned time you must obtain permission from me a week in advance.

Lab Videos: Prior to attending your lab it is mandatory to view the video that accompanies the lab. These videos demonstrate the proper use of new equipment and the safe handling of chemicals. Videos can be found at http://www.uvm.edu/~chem/courses/?Page=31Videos.html.

III. Course Grade

Percent Ranges for Grades:

A+ ≥ 96	A ≥ 90	A- ≥ 88	B+ ≥ 85	B ≥ 80	B- ≥77	C+ ≥72
C ≥ 65	C- ≥ 63	D+ ≥ 60	D ≥ 56	D- ≥ 53	F ≤ 51	

How to Calculate Your Points:

1) Class = 500 points

Four Hour Exams = 4 grades

+ One Final Exam = 2 grades

6 grades

6 grades – 1 grade = 5 grades = **500 class points**

Only five grades are counted for your class points. If your final is your lowest grade it will count only as one unit. If one of the hour exams is your lowest grade then your final will count as two units. The lowest hour exam grade will be replaced by the grade on the final. The tests being only worth 100 points each, would only give you 500 obtainable exam points. If you are absent from an exam official documentation of sickness or family crisis is required or you will receive a **ZERO** for the exam. Students with legitimate excuses will be permitted to take the exam early. Except in very unusual circumstances makeup exams will not be administered after the scheduled exam time.

Example 1:

	Exam 1	Exam 2	Exam 3	Exam 4	Final X2	
Actual Scores	85	45	78	77	75	75
Scores Counted	85	75	78	77	75	

Total Points = 390 points from class

Example 2:

	Exam 1	Exam 2	Exam 3	Exam 4	Final X2	
Actual Scores	67	78	76	69	62	62
Scores Counted	67	78	76	69	62	

Total Points = 352 points from class

2) Laboratory = **200 lab points**

Prelab (2 pts/per)	18 points
Lab Reports (10 pts/per)	100 points
Quizzes (8 pts/per)	72 points
Lab Safety Quiz	10 points
	200 points

(Obtained from the lab TA, the average grade is normally an 80% or 160 points)

3) Course Grade Determination

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

Example 1:

390 class points
\+ 160 lab points
550 total points ÷ 700 possible points = 78.6% B-

Example 2:

352 class points
\+ 160 lab points
512 total points ÷ 700 possible points = 73.1% C+

Academic Integrity

Offenses against the Code of Academic Integrity (i.e. 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 and Standards for further investigation.

IV. Lecture Schedule and Chapter Homework

Dates	Chapters	End-of-Chapter Homework Problems
Aug. 26-Aug.30	1	Ch1: 9,12,16,21,26,28,30,41,46,53,55,59,67,69,83, 87,93,95,98,106,110,117,122,125
Sept. 2	**LABOR DAY HOLIDAY**	
Sept. 3-Sept. 6	2	Ch2: 6,13 thru 24,31,39,41,47,50, 53,57,61,69,72,77,81,85,98,106,111
	3	Ch3: 2 2,4,8,14,32,34,37,44,47,49,52,57,61,67,69,72, 77,81,85,89,91,97,101,113,117,121,126
	9.6	Ch9: 19
Sept. 9	**LAST DAY TO ADD/DROP COURSE**	
Sept. 9-Sept. 13	3 and 4	Ch4: 2,5,10,11,13,26,27,31,33,37,43,46,50,53,55,57, 60,63,65,71,75,98,101,107,111,114,117,120
Sept. 16	REVIEW	
Sept. 17	**EXAM 1**	**Chapters 1, 2, 3, 4.1-4.6, and electronegativity 9.6**
Sept. 18-Sept. 20	5	Ch5: 4, 9, 29, 33, 35, 37, 40, 41, 44, 46, 48, 51, 55, 59, 61, 63, 67, 71, 73, 76, 79, 81, 83, 87, 92, 93, 97, 100, 104, 105, 108, 117, 122
Sept. 23-Sept. 27	5 and 6	Ch6: 6,10,11,13,15,19,21,25,32,35,39,42,44,46,49, 53,56,58,61,64,67,71,74,77,80,.83,85,87,91,97,102, 106,110,113,
Sept. 30-Oct. 4	6	
Oct. 7	REVIEW	
Oct. 8	**EXAM 2**	**Chapters 5 and 6**
Oct. 9-Oct. 11	7	Ch7: 2,5,7,9,12,16,20,26,32,34,39,42,45,52,58,60,63, 68,71,73,76,78,82,86,92,
Oct. 14-Oct. 18	8	Ch8: 7,11,15,16,23,25,28,32,35,37,42,43,47,48,51, 53,55,58,61,64,65,68,72,75,78,80,83,85,89,91,93,99, 105,110

Dates	Chapters	End-of-Chapter Homework Problems
Oct. 21-Oct. 25	9.1-9.3,9.5,9.7-9.9	Ch9: 3,15,19,21,26,28,32,37,51,55,60,63,65,70, 72,73,76,79,81,84,87,95,98,105,110,112
Oct. 28	**LAST DAY TO WITHDRAW FROM COURSE**	
Oct. 28	REVIEW	
Oct. 29	**EXAM 3**	**Chapters 7, 8, 9.1-9.3, 9.5-9.9**
Oct. 30-Nov. 1	10.1-10.3	Ch10: 1,5,9,14,16,31,34,36,39,42,46,50,53, 57,63,86,92,95
Nov. 4-Nov. 8	10.4-10.7	
	9.4	Ch9: 9,11,33,40,46,48,89,114
	9.10	Ch9: 73,75,78,98
Nov . 11-Nov. 15	10.8	Ch10: 23,25,28,71,75,77
	11	Ch11: 5,9 thru 35,46,48,50,53,56,55,61,66,68,71,74, 78,81,84,86,89,102,104,109,114,117,119,122,125, 128,137
Nov. 18	REVIEW	
Nov. 19	**EXAM 4**	**Chapters 10.1-10.8, 9.4, 9.10, 11**
Nov. 20-Nov. 22	REVIEW	
Nov. 25-Nov. 29	**THANKSGIVING HOLIDAY**	
Dec. 2-Dec. 4	REVIEW	
December 9	**Final Exam (*cumulative*)**	**Angell B106 1:30-4:15 pm**

V. Laboratory Schedule

Date	Experiment	Description
Aug 26 – 30	**No Labs**	Purchase breakage card, lab manual and safety glasses On Blackboard, review and complete the Safety Presentation and Safety Quiz
Sept 3 – 6	**No Labs**	***All above must be completed before the first laboratory period***
Sept 9 – 12	1	Measurement and Density
Sep 16 – 19	2	Determination of Chemical Formula
Sep 23 –26	3	Chemical Reactions
Sept 30 – Oct 3	4	Acid Content of a Food Product
Oct 7 – 10	5	Synth. and Ident. of Coordination Cmpd
Oct 14 – 17	6	Gas Law Determination of MW
Oct 21 – 24	7	Heat Capacity of a Calorimeter
Oct 28 – 31	8	$\Delta H°_f$ of MgO
Nov 4 – 7	9	Qualitative Analysis 1
Nov 11 – 14	9	Qualitative Analysis 2
Nov 18 – 21	10	Flame Emission Spec of Metals **Checkout**
Nov 25 – 29	**THANKSGIVING HOLIDAY**	