CHEM 31C (90861): General Chemistry Fall 2015

I. Lecture

Lecturer: Erik Ruggles, Ph.D.

Office: A237 Cook

Email: Erik.Ruggles@uvm.edu

Office Hours:

M W F:	10:00 – 11:30am
M W F:	1:00 – 2:00pm
T Th:	10:00am – 12:30pm

or by appointment

Lecture Time: M W F 12:00– 12:50 pm **Location:** Rowell 103

Lecture: The lecture each week will be used to cover new material and concepts along with sample problem solving. 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: Problem sets and Sapling exercises will be assigned after each lecture and a complete list for the textbook can be found on page 5 of the Syllabus. I strongly encourage you to do as many problems as possible, the more you practice the better you will get. Also, blank old exams from my 2013 and 2014 classes as well as their answer keys 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. ***Do not study with just the old exams!*** Also there are sample homework problem videos posted on Blackboard for extra "at-home" help.

Recitations: Throughout the semester I will also hold recitations on Tuesdays evenings from 7:35-8:35 pm in Marsh Life Sciences 235. Also the Sunday before a mid-semester exam I will hold an exam review session from 7:00-9:00 pm in Marsh Life Sciences 235. 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.

Homework Quizzes: There will be eight homework quizzes through out the semester. These assignments will be end-of-chapter Sapling exercises. You will have several days to complete each assignment, but I would not wait until the last moment.

Exams: The exams are scheduled to be ***Tuesday evenings from 7:35-10:35 pm in Rowel 103 (Last Name: A—K) or Votey Hall 105 (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:

Exam 1 September 22	Exam 4 December 1
Exam 2 October 13	ACS December 8 (extra credit)
Exam 3 November 3	Final December 11 (Rowell 103 7:30-10:15 am)

II. Laboratory

Lab Manuals: All experiments can be found online on the Sapling website as individual pdfs. Please make sure you ***print out each experiment and bring to lab*.**

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 = **800 total points** (80% of grade; exams and homework)

Exams = **500 points** (100 points/exam; unweighted)

500 exam points X 1.44 = **720 weighted exam points**

Sapling Homework = **80 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. 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	HW
Actual:	85	45	78	77	75	70
Counted:	85	75	78	77	75	70

Exam Points = 390 x 1.44 = 561.6 weighted exam points

Class Total Points = 561.6 (weighted) + 70 (HW) = 631.6 points

Example 2:

	Exam 1	Exam 2	Exam 3	Exam 4	Final	HW
Actual:	67	78	76	69	62	55
Counted:	67	78	76	69	62	55

Exam Points = 352 x 1.44 = 506.88 weighted exam points

Class Total Points = 506.88 (weighted) + 55 (HW) = 561.88 points

2) Laboratory = **200 lab points** (20% of grade)

Sapling Intro Quiz	10 points
Lab Safety Quiz	10 points
Laboratory Technique (2 pts/per)	18 points
Prelab (2 pts/per)	18 points
Lab Reports (10 pts/per)	72 points
Prelab Quizzes (8 pts/per)	+ 72 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:

631.6 class points

\+ 160 lab points

793.6 total points/1000 points = 79.4% B-

Example 2:

561.88 class points

\+ 160 lab points

723.88 total points/1000 points = 72.4% 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. 31-Sept. 4	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. 7	**LABOR DAY HOLIDAY**	
Sept. 8-Sept. 11	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. 14	**LAST DAY TO ADD/DROP COURSE**	
Sept. 14-Sept. 18	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. 21-Sept. 22	REVIEW	
Sept. 22	**EXAM 1**	**Chapters 1, 2, 3, 4.1-4.6, and electronegativity 9.6**
Sept. 23-Sept. 25	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. 28-Oct. 2	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,
Oct. 5-Oct. 9	6	
Oct. 12-Oct. 13	REVIEW	
Oct. 13	**EXAM 2**	**Chapters 5 and 6**
Oct. 14-Oct. 16	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. 19-Oct. 23	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. 26-Oct. 30	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
Nov. 2	**LAST DAY TO WITHDRAW FROM COURSE**	
Nov. 2-Nov. 3	REVIEW	
Nov. 3	**EXAM 3**	**Chapters 7, 8, 9.1-9.3, 9.5-9.9**
Nov. 4-Nov. 6	10.1-10.3	Ch10: 1,5,9,14,16,31,34,36,39,42,46,50,53, 57,63,86,92,95
Nov. 9-Nov. 13	10.4-10.7	
	9.4	Ch9: 9,11,33,40,46,48,89,114
	9.10	Ch9: 73,75,78,98
Nov . 16-Nov. 20	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. 23-Nov. 27	**THANKSGIVING HOLIDAY**	
Nov. 30-Dec. 1	REVIEW	
Dec. 1	**EXAM 4**	**Chapters 10.1-10.8, 9.4, 9.10, 11**
Dec. 2-Dec. 9	REVIEW	
Dec. 8	**ACS Assessment**	
Dec. 11	**Final Exam**	**Cumulative** (Rowell 103 7:30-10:15 am)

V. Laboratory Schedule

Date	Experiment	Description
Aug 31 – Sept 4	**No Labs**	Purchase breakage card, lab manual and safety glasses On Blackboard, review and complete the Safety Presentation and Safety Quiz
Sept 7 – 11	**No Labs**	***All above must be completed before the first laboratory period***
Sept 14 – 18	1	Acid Content of a Food Product
Sep 21 – 25	2	Chemical Reactions
Sep 28 – Oct 2	3	Gas Law Determination of MW
Oct 5 – 9	4	$\Delta H°_f$ of MgO
Oct 12 – 16	5	Heat Capacity of a Calorimeter
Oct 19 – 23	6	Flame Emission Spec of Metals
Oct 26 – 30	7	Qualitative Analysis 1
Nov 2 – 6	7	Qualitative Analysis 2
Nov 9 – 13	8	Chemical Models (VSEPR)
Nov 16 – 20	9	Intermolecular Forces of Attraction
Nov 23 – 27	**THANKSGIVING HOLIDAY**	
Nov 30 – Dec 4	10	**Checkout**

V. ACCESS Accommodations and Religious Holidays

Student Learning Accommodations Statement

In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact ACCESS, the office of Disability Services on campus. ACCESS works with students to create reasonable and appropriate accommodations via an accommodation letter to their professors as early as possible each semester.
Contact ACCESS: A170 Living/Learning Center - 802-656-7753 - access@uvm.edu.

ACCESS Office: http://www.uvm.edu/~access/

Policy on disability certification and student support:
http://www.uvm.edu/~uvmppg/ppg/student/disability.pdf

Religious Holiday Policy Statement

Religious Holidays: Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time.