CHEM 32B (10115): General Chemistry Spring 2016

I. Lecture

Lecturer: Erik Ruggles, Ph.D. **Office:** A237 Cook **Email:** Erik.Ruggles@uvm.edu

Lecture Time: T Th 1:15 – 2:30 pm **Location:** Marsh Life Sciences 235

Office Hours: T Th: 10:00am – 12:30pm; 2:45 – 3:45pm; 6:00pm – 7:00pm
W: 10:00am-1:30pm (floating); or by appointment

Review Sessions: T: 7:30 – 9:00 pm **Location:** Marsh Life Sciences 235

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" 3rd Ed., by Nivaldo Tro (2nd UVM Custom Edition Volume II) can be purchased at the UVM bookstore. 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 graded exercises will be assigned after each lecture and a complete list for the textbook can be found on page 5 of the Syllabus. I encourage you to do as many problems as possible, the more you practice the better you will get. Also, blank old exams from my 2014 and 2015 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!*** There are also 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 7:30-9:00 pm in Marsh Life Sciences 235. 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 review 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 second.

Exams: The exams are scheduled to be ***Tuesday evenings from 7:35-10:35 pm in Marsh Life Sciences 235***. 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; February 9
Exam 2; March 15
Exam 3; April 5
Exam 4; April 26
ACS; May 3 (extra credit)
Final; May 10 (Marsh Life 235; 10:30am-1:15pm)

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).

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 at least one week in advance. ***Please contact our Lab Director, Christine Cardillo*** (Christine.Cardillo@uvm.edu) ***with any attendance issues.***

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. ***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 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 Sapling lab account, lab notebook, breakage card, and safety glasses. ***If you have not purchased or completed these items you will not be able to begin the lab portion of the course.***

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=32Videos.html.

III. Course Grade

Percent Ranges for Grades:

A+ ≥ 97	A ≥ 92	A- ≥ 90	B+ ≥ 87	B ≥ 81	B- ≥79	C+ ≥75
C ≥ 66	C- ≥ 64	D+ ≥ 61	D ≥ 57	D- ≥ 54	F < 54	

How to Calculate Your Points:

1) Class = **800 total points** (80% of grade; Exams and Homework)

   Exams = **500 points** (5 Exams) X 1.44 = **720 weighted points**

   Homework = **80 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 X2		Homework
Actual	85	45	78	77	75	75	70
Counted	85	75	78	77	75		70

Exam Points = 390 points X 1.44 = 561.6 weighted points

Class Total Points = 561.6 points + 70 = 631.6 points

Example 2:

	Exam 1	Exam 2	Exam 3	Exam 4	Final X2		Homework
Actual	67	78	76	69	62	62	55
Counted	67	78	76	69	62		55

Exam Points = 352 points X 1.44 = 506.88 weighted points

Class Total Points = 506.88 points + 55 = 561.88 points

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

Prelab (2 pts/per)	20 points
Lab Reports (10 pts/per)	100 points
Quizzes (8 pts/per)	80 points
	200 points

(Obtained from the lab TA, the average grade is normally an 82.0% or 162 points)

3) Course Grade Determination

Example 1:

631.6 class points

\+ 162 lab points

793.6. total points/1000 possible = 79.4% = B-

Example 2:

561.88 class points

\+ 162 lab points

723.88 total points/1000 possible = 72.3% = 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.

Schedule and Homework Problems:

Date	***Chapter***	***Homework Problems***
January 18	**Martin Luther King Holiday**	
January 18 - 22	4.4-4.7 Review 12	Ch12: 6,8,10,12,13,14,18,21,25,31,33,35,39, 42,43,47,49,51,54,57,61,63,70,71,73,75,78,80, 83,86,89,92,93,96,99,101,106,108,115
January 25 - 29	12 and 13	Ch13: 3,6,9,12,14,19,23,25,27,30,33,39,41,43, 45,47,51,53,55,57,59,61,64,67,72,75,79,81,85, 87,90,94,97,104,108
January 25	**Last Day to Add/Drop Course**	
February 1 - 5	13	
February 7 - 9	Review	
February 9	**First Exam**	**Chapters 4.4-4.7, 12, 13**
February 10 - 12	14	Ch14: 4,8,12,14,21,23,27,29,31,33,37,40,43, 46, 52,55,58,61,63,69,71,75,77,79,81,84,86,89
February 15	**Presidents Day**	
February 15 - 19	14 4.8 Review 15	Ch15: 5,10,15,23,26,35,37,38,41,44,46,47,51, 56,57,59,61,63,65,69,75,77,81,85,87,89,92,95, 97,99,103,107,113,115,117,119,125,136,137
February 22 - 26	15	
March 1	**Town Meeting Day**	
February 29 - March 4	15 16	Ch16: 2,4,6,11,12,14,19,21,29,31,34,41,45, 47,49,51,53,55,57,59,63,65,71,74,76,80,82, 87,89,91,94,97,99,100,103,107,110,111,114 117,120,123,126,130,134
March 7-11	**SPRING BREAK**	
March 13 - 15	Review	
March 15	**Second Exam**	**Chapters 4.8, 14, 15, 16**

March 16 - 18	16	
March 21 - 25	16 17	Ch17: 7,9,12,16,23,26,27,31,33,37,39,41,44, 47,49,51,55,57,59,61,63,65,67,71,73,77,79,82, 85,87,88,93,98
March 28 – April 1	17	
April 4	**Last Day to Withdraw from Course**	
April 3 - 5	Review	
April 5	**Third Exam**	**Chapters 16,17**
April 6 - 8	4.9 Review 18	Ch18: 4,5,6,9,13,17,18,19,30,34,39,41,43,45, 47,49,51,53,57,61,63,65,67,71,73, 75,77,79,82 82,86,88,93,96.99,102,103,109,113,117,121, 123
April 11 - 15	18	
April 18 - 22	19	Ch19: 4-11,14,17,21,28,31,33,35,41,43,45,49, 51,53,55,57,63,67,69,71, 77,79,81,88,91,95,98 99,103
April 24 - 26	Review	
April 26	**Fourth Exam**	**Chapters 4.9, 18 19**
April 27 - 29	Review	
May 2 - 4	Review	
May 3	**ACS Assessment**	
May 10	**Final Exam**	**Cumulative** (Marsh 235; 10:30am-1:15pm)

Laboratory Schedule

DATE	EXPERIMENT
January 18 - 21	**No Lab**
January 25 - 28	Check-In Recitation 1
February 1 - 4	Molar Mass from Freezing Point Depression Recitation 2
February 8 - 11	Iodination of Acetone No Recitation
February 15	**Presidents Day** - **No Lab**
February 16 – 18, 22	Recitation 3
February 23 – 25, 29	Keq of $FeSCN^{+2}$ Recitation 4
March 1 - 3	**No Labs**
March 7 - 10	**Spring Break** - **No Labs**
March 14 -17	Acid Neutralization of Anti-Acids No Recitation
March 21 - 24	Acid-base Equilibria and Buffers Recitation 5
March 28 - 31	K_{sp} of Copper (II) hydroxide Recitation 6
April 4 - 7	Thermodynamics of the Dissolution of Borax
April 11 - 14	Oxidizing Power of Bleaches Recitation 7
April 18 - 21	Potentiometric Determination of K_a Recitation 8
April 25 - 28	Electrolysis/Electroplating **CHECK OUT**