Spring 2014 CHEM 32A (10120 and 14697)

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Office Hours: M W F 9:00am – 11:00am
T Th 10:00am – 12:00pm
or by appointment

Lecture Time: M W F 11:45 am – 12:35 pm **Location:** Angell B106

Lecture

Lecture: The lecture each week will be used primarily to cover new material. Included in the syllabus is a tentative schedule covering the topics and timing of the lecture, reading material, and homework problem sets. Most will find it difficult to do well in this class if they do not attend the lecture. 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) can be purchased at the UVM bookstore. The solutions manual comes with the text and has the complete solutions to all the textbook problems. The solutions manual while not required can be a great help during problem solving.

Homework Problems: Homework assignments from the textbook can be found in the Lecture Schedule portion of the syllabus and I will assign homework via Blackboard Announcements after every lecture. Answers to these textbook problems can be found in the solutions manual. I strongly encourage you to keep up with the homework assignments and do as many problems as possible. These problems combine mathematics with scientific concepts and are challenging, so the more you practice the better you will get. ***To encourage practice we will be using Cengage's MindTap for graded homework***. Blank old exams from my 2012 and 2013 General Chemistry classes as well as their answer keys are posted on Blackboard. These are a great way to evaluate what you understand as they provide a real game-day experience. If you take these like real exams you will quickly know what you understand and what you do not. You can then practice or get help in those areas of difficulty. Please remember that the test questions will change for your exams, but the format and concepts will remain the same.

Problem Sessions: Throughout the semester I will hold recitations on Tuesdays evenings from 7:00-8:00 pm in Marsh Life Sciences Lecture Hall 235 to better clarify topics and/or do problem solving. Also the Sunday before a mid-semester exam I will hold an extra review session from 7:00-9:00 pm in Angell B106 Lecture Hall as well. For continued review, the class before the exam will be a review session instead of the standard lecture.

Exams: The exams are scheduled to be ***Tuesday evenings from 7:00-9:45 pm in Marsh Life Sciences 235 (A—O) or Rowell 103 (P—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.***

Laboratory

Lab Manuals: "Chemistry 32, A Lab Manual", 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).

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 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.***

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.

Course Grade

Percent Ranges for Grades:

A+ ≥ 96	A ≥ 91	A- ≥ 89	B+ ≥ 86	B ≥ 80	B- ≥78	C+ ≥74
C ≥ 65	C- ≥ 63	D+ ≥ 60	D ≥ 56	D- ≥ 53	F < 53	

How to Calculate Your Points:

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

   Exams = **500 points** (5 Exams) X 1.49 = **745 weighted points**

   Homework = **55 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	45
Counted	85	75	78	77	75		45

Exam Points = 390 points X 1.49 = 581.1 weighted points

Class Total Points = 585 points + 45 = 626.1 points

Example 2:

	Exam 1	Exam 2	Exam 3	Exam 4	Final X2		Homework
Actual	67	78	76	69	62	62	35
Counted	67	78	76	69	62		35

Exam Points = 352 points X 1.49 = 524.8 weighted points

Class Total Points = 524.8 points + 35 = 559.48 points

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

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 82.0% or 162 points)

3) Course Grade Determination

Example 1:

626.1 class points

\+ 162 lab points

788.1. total points/1000 possible = 78.8% = B-

Example 2:

559.48 class points

\+ 162 lab points

721.48 total points/1000 possible = 72.1% = 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.

Lecture Schedule and Homework Problems

Date	Chapter	Homework Problems
January 13-17	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 20	**Martin Luther King Holiday**	
January 21-24	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 27	**Last Day to Add/Drop Course**	
January 27-31	13	
February 3-4	Review	
February 4	**First Exam**	**Chapters 4.4-4.7, 12, 13**
February 5-7	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 10-14	14	
February 17	**Presidents Day**	
February 18-21	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 24-28	15	
March 3-7	**SPRING BREAK**	
March 10-11	Review	
March 11	**Second Exam**	**Chapters 4.8, 14, 15**
March 12-14	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 17-21	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 24-28	17	
March 28	**Last Day to Withdraw from Course**	
March 31-April 1	Review	
April 1	**Third Exam**	**Chapters 16,17**
April 2-4	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 7-11	18	
April 14-18	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 21-22	Review	
April 22	**Fourth Exam**	**Chapters 4.9, 18 19**
April 23-25	Review	
April 29	**ACS Assessment**	
April 28-30	Review	
May 5	**Final Exam**	**Cumulative (10:30am-1:15pm; Angell B106)**

Laboratory Schedule

DATE	EXPERIMENT	
January 13 - 16	**No Lab**	
January 20 - 23	**No Lab**	
January 27 - 30	Molar Mass from Freezing Point Depression	pg 15
February 4 - 7	Iodination of Cyclohexanone	pg 19
February 10 – 13	Keq of $FeSCN^{+2}$	pg 24
February 17 - 20	**Presidents Day** - **No Lab**	
February 24 - 27	Acid Neutralization of Anti-Acids	pg 28
March 3 - 6	**Spring Break** - **No Lab**	
March 10 -13	Acid-base Equilibria and Buffers	pg 30
March 17 - 20	K_{sp} of Copper (II) tartrate	pg 37
March 24 - 27	Thermodynamics of the Dissolution of Borax	pg 40
March 31 – April 3	Oxidizing Power of Bleaches	pg 44
April 7 - 10	Potentiometric Det. of Ka	pg 47
April 14 - 17	Electrolysis/Electroplating **CHECK OUT**	pg 51