CHEM 31E (90896): General Chemistry Fall 2018

I. Lecture

Lecturer: Erik Ruggles, Ph.D.

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Office Hours: T Th: 10am-12pm, 2-4pm
W: 8:30-11:30am; 1-3pm
or by appointment

Lecture Time: T Th 4:25 – 5:40 pm

Location: Billings Lecture Hall I101

Lecture: The lecture each week will be used to cover new material and concepts along with sample problem solving. Live lecture notes I present in class will be posted on Blackboard (BB) after each class.

Textbook: There are three options to purchase "Chemistry Structure and Properties" 2nd Ed., by Tro (Full text ISBN-13: 978-0-13-429393-6) along with Mastering Chemistry online access. 1) It can be purchased at an online site (~$300; text and mastering), or 2) at the UVM bookstore (~$160; text, solutions manual, and mastering), or 3) digital access (~$120; etext and mastering). The digital solutions manual will be provided for free but also comes with the UVM package and has the complete solutions to all the assigned problems. The most bang for your buck is the UVM bookstore package.

Problems: Problem sets and Mastering Chemistry 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 posted in Course Materials on BB, blank old exams from my 2016 and 2017 classes as well as their answer keys. 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 for extra "at-home" help.

Recitations: Throughout the semester I will hold recitations on the Monday evening before an exam from 6:45-8:45 pm in Marsh Life Sciences 235. The Sunday before a mid-semester exam I will hold an exam review session from 9:00-11:00 am in Marsh Life Sciences 235. These problem sessions are meant to address your questions about lecture topics and/or homework problem solving, so come prepared with questions.

Homework Quizzes: There will be ten graded homework quizzes (best 10 out of 12) during the semester. These assignments will occur once we finish a chapter and will be found in Mastering Chemistry. 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 ***Monday evenings from 6:40-9:40 pm in Marsh Life 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.***

II. Laboratory

Lab Manuals: All experiments can be found online on your lab's BB 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 the Discovery Building stockroom. ***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.

Prior to Start of Lab: Purchase your lab manual, lab notebook, 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: https://www.youtube.com/channel/UC8r6fR2K-8xAtsf-_a8edMg.

III. Course Grade

Percent Ranges for Grades:

I cannot say in advance which point ranges correspond to which letter grades, but I will give approximate correlations throughout the semester following each of the exams. Please note that you are not competing with each other for grades in this course: if everyone scores in the "A-range," I will give everyone "A"s for the course (really!). I encourage you all to work together as you study, to help each other learn the material, but do also recognize that all graded work must be solely your own, so be prepared to work independently to demonstrate your mastery of the material.

How to Calculate Your Points:

1) Class = **750 total points** (75% of grade; exams and homework)

1a) Mid-Semester Exams = **375 points** (125 points/exam)

1b) Homework = **125 points** (12.5 points/assignment)

1c) Final Exam = **250 points**

There are three mid-semester exams (each 125 points) and a final exam (250 points). If your final is your lowest grade it will count only as one unit. If one of the mid-semester exams is your lowest grade then your final will count as two units. The lowest mid-semester exam grade will be replaced by the percentage 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	Final
Actual Scores:	106.25 (85%)	56.25 (45%)	97.5 (78%)	187.5 (75%)
Counted Scores:	106.25 (85%)	93.75 (75%)	97.5 (78%)	187.5 (75%)

Homework Score: 105.0 (84%) Class Points = 485.0 exam + 105.0 homework

Total = 590.0 points

Example 2:

	Exam 1	Exam 2	Exam 3	Final
Actual:	87.5 (70%)	97.5 (78%)	95.0 (76%)	170.0 (68%)
Counted:	87.5 (70%)	97.5 (78%)	95.0 (76%)	170.0 (68%)

Homework Score: 87.5 (70%) Class Points = 446.25 exam + 87.5 homework

Total = 537.5 points

2) Laboratory = **250 lab points** (25% of grade)

Safety Quiz	1 point
Prelab (3 pts/per)	27 points
Lab Reports (15 pts/per)	100 points
Quizzes (8 pts/per)	72 points
	250 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:

590.0 class points

\+ 200 lab points

790.0 total points/1000 points = 79.00%

Example 2:

537.5 class points

\+ 200 lab points

737.5 total points/1000 points = 73.75%

To summarize:

[(Ex1 + Ex2 + Ex3 + Final + Homework + Lab = Total Points

(Total Points)/1000] x 100 = Total Percent

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.

http://www.uvm.edu/policies/student/acadintegrity.pdf

IV. Lecture Schedule and Chapter Homework

Exam 1 September 17 **Exam 3** November 12

Exam 2 October 15 **Final** December 13 (Billings LH I101); 4:30-7:15 pm)

Dates	Chapters	End-of-Chapter Homework Problems
Aug. 27 - Aug. 31	E and 1	ChE: 19,21,23,25,27,29,33,37,39,41,45,47,49,51,53, 55,59,61,65,71,73,75,79,81,87,89,91,95,99, Ch1: 35,39,43,45,49,53,55,57,59,61,63,65,67,71,75, 77,79,83,85,87,89,91,93,97,103,105,107,109,117,
Sept. 3	**LABOR DAY HOLIDAY**	
Sept. 4 - Sept. 7	1 and 2	Ch2: 35,37,39,41,43,51,53,55,57,59,61,63,65,67,69, 71,73,79,85,89,91
Sept. 10	**LAST DAY TO ADD/DROP COURSE**	
Sept. 10 - Sept. 14	2	
Sept. 17	**EXAM 1***	**Chapters E, 1, and 2,**
Sept. 17 - Sept. 21	3	Ch3: 41,43,45,47,49,51,53,55,57,59,61,63,65,67,69, 71,73,75,77,79,81,83,87,89,91,93,95,97,101,103,109, 115,127,135
Sept. 24 - Sept 28	4	Ch4: 29,31,33,35,37,39,43,45,47,49,51,53,55,57,61, 63,65,67,69,71,75,77,79,83,87,93,95,97,101,103,105, 109,111,117,119,121,123,125,127,137
Oct. 1 - Oct. 5	4 and 5	Ch5: 23,25,27,29,31,35,37,41,43,45,47,49,51,53,55, 57,59,61,63,65,69,71,73,75,79,81,83,85,91,95,97,99, 101
Oct. 8	**FALL RECESS**	
Oct. 8 - 12	5	
Oct. 15	**EXAM 2***	**Chapters 3, 4, and 5**
Oct. 15 - Oct. 19	6	Ch6: 25,29,31,33,35,39,41,43,45,49,51,53,55,57,59, 61

*Extent of exam material will depend on our progress in lecture.

Dates	Chapters	End-of-Chapter Homework Problems
Oct. 22 -Oct. 26	11 and 7	Ch11: 35,37,39,41,43,45,47,49,51 Ch7: 15,17,19,21,23,25,27,29,31,33,35,37,39,41,43, 45,47,49,53,55,57,61,63,65,67,69,71,75,81,85
Oct. 29	**LAST DAY TO WITHDRAW FROM COURSE**	
Oct. 29 - Nov. 2	7 and 8	Ch8: 21,23,25,27,29,31,33,35,37,39,41,43,45,47,49, 51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,87, 91,93,99
Nov. 5 - Nov. 8	8 and 9	Ch9: 31,33,35,37,39,41,43,45,47,49,51,53,57,59,61, 63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,93,95, 99,101,107,111,113,117,119,123
Nov. 12	**EXAM 3***	**Chapters 6, 11, 7, 8,**
Nov. 12 - Nov. 16	9	
Nov. 19 -Nov. 23	**THANKSGIVING HOLIDAY**	
Nov. 26 - Nov. 30	10	Ch10: 25,29,31,33,35,37,39,41,43,45,47,49,51,53,55, 57,59,61,63,67,69,71,73,77,79,81,83,85,87,89,91,93, 95,99,101,105,107,113,123,125,127
Dec. 3 – Dec. 7	10, 11 and review	Ch11: 53,57,59,61,63,65,67,69,71,73,77,81,85,87,93
Dec. 13	**Final Exam**	**Cumulative** (Billings LH I101; 4:30-7:15 pm)

*****Extent of exam material will depend on our progress in lecture.

V. Laboratory Schedule

Date	Experiment	Description
Aug27 – Aug 31	**No Labs**	Purchase lab manual and safety glasses On Blackboard, review and complete the Safety Presentation and Safety Quiz
Sept 3 – 7	**No Labs**	***All above must be completed before the first laboratory period***
Sept 10 – 14	Lab 1 Recitation 1	Check In Density Determination Chapters E1, 1, 2, 3 (e- configurations)
Sep 17 – 21	Lab 2 No Recitation	Flame Emission Spec of Metals (Exam Week)
Sep 24 – 28	Lab 3 Recitation 2	Ionization Energy/Atomic Radius Chapters 3 and 4
Oct 1 – 5	Lab 4 Recitation 3	Determination of a Chemical Formula Chapters 4 and 5
Oct 8 – 12	**No Labs**	
Oct 15 – 19	Lab 5 No Recitation	Chemicals Models 2 (VSEPR) (Exam Week)
Oct 22 – 26	Lab 6 Recitation 4	Intermolecular Forces of Attraction Chapters 5, 6, and 11
Oct 29 – Nov 2	Lab 7 No Recitation	Chemical Reactions (Long Lab)
Nov 5 – 9	Lab 8 Recitation 5	Acid Titration of a Food Product Chapters 7 and 8
Nov 12 – 16	Lab 9 No Recitation	$\Delta H°_f$ of MgO Heat Capacity of a Calorimeter (Exam Week)
Nov 19 – 23	**THANKSGIVING HOLIDAY**	
Nov 26 – Nov 30	Lab 10 Recitation 6	Gas Law Determination of MW Chapters 9 and 10
Dec 3 – Dec 7	11 Recitation 7	Check Out Review

VI. 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.*

VII. Illness Accommodations

The Center for Health and Wellbeing does not provide students with notes verifying medical illness. This approach makes the best use of their limited medical resources by not having students who are required to provide verification of a recent illness utilize appointment times which can be used for students who require evaluation and therapy. Instead, contact your college's Dean's office so they can report your illness to all of your professors.

When students experience a serious illness requiring hospitalization or when an extended absence from class is foreseen, a Center staff member will (with the student's permission) notify the Dean's Office of the student's College or School so that faculty members can be made aware and the student supported in working successfully through the absence.