CHEM 32 (60037): General Chemistry Summer 2020*

I. Lecture

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Office Hours: Mon-Thurs, 8:00am-11:00am (Virtual Chat on Teams)

Virtual Class Time: Mon-Thurs (8am-11am)

Location: Your Work Station

Textbook: If you've taken Chem31 at UVM recently, then probably have all the materials necessary for Chem32. If not, there are three options to purchase **"Chemistry Structure and Properties" 2nd Ed., by Tro** (*Pearson Publishing; Full text ISBN-13: 978-0-13-429393-6*) **along with Mastering Chemistry online access**. 1) The full textbook and mastering can be bought on Pearson's online site (~$300; text and mastering), or 2) at the UVM bookstore (~$160; UVM custom textbook, solutions manual, and mastering), or 3) just 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 (option 2), but the most economical and necessary is digital access (option 3).

Lecture: The video lectures for discussions Monday-Thursday will be used to cover new material and concepts along with sample problem solving. They will be assigned the day before virtual class meetings and you are expected to watch the lecture prior to virtual class time. My video lecture notes will also be posted in pdf format in **4. Course Materials** on BlackBoard (BB).

Assignments: Assignments are broken down into Modules and can be found in **2. Assignments** on BB. Each module contains Lecture Videos, Textbook Sections Covered and Homework Problem Sets. They will be assigned the day before virtual class meetings and you are expected to do your best to complete the module prior to virtual class time. I strongly encourage you to do as many problems as possible, the more you practice the better you will get.

Virtual Class Time: Class will be held virtually from 8am-11am Monday-Thursday and is meant for questions and answers. The module assigned should be finished prior as I want to use this time to clarify lecture concepts and homework problems. I will be omnipresent on **5. Discussion Boards** on BB and email for question and answer. Class Q and A will also be posted in pdf format in **4. Course Materials** on BB.

Extra Practice: For added examples, blank old exams from my 2019 and 2018 classes, SI Sessions, as well as their answer keys are posted in **4. Course Materials** on BB. Remember that even though questions will change from year to year, the concepts will remain the same. ***Do not study with just the old exams!*** The Meat and Potatoes, or Seitan and Broccoli, is in the Homework Problems. Also there are homework problem videos posted for extra "at-home" help.

Exams: The exams are scheduled to be on open on **3. MasteringChemistry** *Friday from 9:00am-9:00pm*. There are three hours to complete the exam. There are no scheduled make up dates. Only non-programmable non-graphing calculators are permitted. No other electronic devices are allowed.

Exam Dates:

Exam 1 June 19 (Friday)

Exam 2 June 26 (Friday)

Exam 3 July 2 (Thursday)

Final Exam July 10 (Friday)

*All times are Eastern Standard

II. Laboratory

Lecture Time: Mon – Wed **Location:** Your Workstation

Lab BlackBoard: You will have access to the lab portion of this course in **6. Lab Materials** on BlackBoard as well. The lab platform is known as Labflow, don't worry you'll be notified to sign up (this is covered in your lab fees). Here is where you will find experimentals, helpful documents and videos, logistics, etc. Here is also where you will hand in materials, such as Pre-Lab Quiz Questions, Lab Reports and Post-Lab questions.

Lab Manuals: All experiments can be found online using the Labflow Online Platform. Please make sure you thoroughly go through the actual experimental before attacking the labs**.**

Lab Notebook: We used to require a notebook with carbon-less copies 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. However, any notebook can be used for our Virtual environment.

Prior to Start of Lab: Purchase your "lab notebook". You will be using the Labflow Online Platform for the experiential part of the lab. ***If you have not completed these items you will not be able to begin the lab portion of the course.***

Attendance and Lab Reports: Students must hand in their Lab Reports for each experiment. ***If more than three Lab Reports are not handed in 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 or time extension.

III. Course Grade

Percent Ranges for Grades:

A+ ≥ 97	A ≥ 92	A- ≥ 90	B+ ≥ 87	B ≥ 82	B- ≥79	C+ ≥74
C ≥ 67	C- ≥ 64	D+ ≥ 61	D ≥ 57	D- ≥ 54	F < 54	

How to Calculate Your Points:

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

1a) Mid-Semester Exams = **525 points** (175 points/exam)

1b) Final Exam = **225 points**

There are three mid-semester exams (each 175 points) and a final exam (225 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:	148.75 (85%)	78.75 (45%)	136.5 (78%)	168.75 (75%)
Counted:	148.75 (85%)	131.25 (75%)	136.5 (78%)	168.75 (75%)

Total = 585.25 points

Example 2:

	Exam 1	Exam 2	Exam 3	Final
Actual:	122.5 (70%)	136.5 (78%)	133.0 (76%)	153.0 (68%)
Counted:	122.5 (70%)	136.5 (78%)	133.0 (76%)	153.0 (68%)

Total = 545.0points

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

There are 10 lab experiments, each worth 25 points total which will be split into Pre-Lab questions (10 points), Lab Report and Post-Lab questions (15 points). Roughly we see an 80% average (~200 points) in labs.

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:

585.25 class points

\+ 200 lab points

785.25 total points/1000 points = 78.25% C+

Example 2:

545.0 class points

\+ 200 lab points

745.00 total points/1000 points = 74.50% C+

To summarize:

Ex1 + Ex2 + Ex3 + Final + Lab + Extra Credit = 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.

IV. Tentative Lecture Schedule and End-of-Chapter Homework

Dates	Chapters	Homework Problems (Learning Objectives)
June 15	Syllabus	(Class Dynamics)
	13	Ch13: 25,27,29,31,33,35,37,43,45,47,49,51, 59,63,65,67,69,71,73,77,79,81,83,85,87,89,93, 97,99,105,109,115 (Module13: Solution Concentration, Temperature Effects, Colligative Properties, Melting and Boiling Points, Osmotic Pressure)
June 16	13 and 14	Ch14: 27,29,31,37,41,45,47,53,55,59,65,71, 75,77,83,89,91,95,103,105,107 (Module14: Chemical Kinetics, Rate Laws, Integrated Rate Laws, Mechanism, Temperature Effects)
June 17	14	
June 18	15	Ch15: 21,23,27,29,31,33,35,37,39,41,45,47, 49,53,55,59,63,65,67,69,71,73,75,79,81,83,89 (Module15: Chemical Equilibrium, K_c, K_p, and Le Châtelier)
June 19	**EXAM 1****	**Chapters 13, 14, 15****
June 22	15 and 16	Ch16: 31,33,35,37,39,41,45,49,51,55,59,61, 65,67,69,71,75,79,81,83,85,87,89,91,95,97,99, 101,103,107,109,111,113,115,117,121,123, 127,129,133,141 (Module 16: Acid-Base Reactions and Equilbria, Conjugate Acid/Conjugate Base Equilibria, Polyprotics
June 23	16	
June 24	16	
June 25	17	Ch17: 25,27,29,31,33,35,39,41,43,45,49,51, 53,57,59,61,63,65,67,69,71,75,81,83,85,87,93, 95,97,103,105,111,113,115,121,125 (Module17: Buffers, Titrations, and Solubility Equilibria)

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

June 26	**Second Exam****	**Chapters 15,16,17****
June 29	17	
June 30	17 and 18	Ch18:31,35,37,39,41,45,47,51,53,55,59,61, 67,71,73,75,85,87,93,101 (Module18: Entropy, Gibbs Free Energy, Free Energy and Equilibrium, Standard State and Non-Stanard State)
July 1	18 and 19	Ch19: 33,35,37,39,41,43,45,47,49,53,57,59, 61,63,65,69,71,73,77,83,85,89,97,99,103,105, 115,119 (Module19: Redox, Cell Potential, Redox and Equilibrium, Batteries, Electrolysis and Corrosion)
July 2	**Exam 3****	**Chapters 17,18,19****
July 3	**Independence Day (observed)**	
July 6	19	
July 7	19	
July 8	20	Ch20: 31,33,35,37,41,45,51,57,61,71,73,81, 83,89 (Module20: Radioactivity, Kinetics of Radioactivity, Fusion, Fission, and Binding Energy)
July 9	Review	
July 10	**Final Exam**	**Cumulative**

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

V. Laboratory Schedule

Date	Experiment	Description
June 16	**Check In**	
	Experiment 1	Molar Mass and Freezing Point
	Lecture Correlation	Module 13
June 17	Experiment 2	Rate Expression Determination
	Lecture Correlation	Module14
June 22	Experiment 3	Determination of K_{eq}
	Lecture Correlation	Module15
June 23	Experiment 4	Le Châtelier's Principle
	Lecture Correlation	Module15
June 29	Experiment 5	Buffer Solutions
	Lecture Correlation	Module17
June 30	Experiment 6	Molar Mass of Diprotic Acid
	Lecture Correlation	Module17
July 1	Experiment 7	Determination of K_{sp}
	Lecture Correlation	Module17
July 6	Experiment 8	Entropy of Borax Dissolution
	Lecture Correlation	Module18
July 7	Experiment 9	Quantify NaOCl in Bleach
	Lecture Correlation	Module19
July 8	Experiment 10	Voltaic Batteries
	Lecture Correlation	Module19

VI. ACCESS Accommodations

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

VII. Religious Holidays

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.

VIII. 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.