CHEM 23/25: OUTLINE OF GENERAL CHEMISTRY

Fall 2018

LECTURE : CHEM 23 (90845) & CHEM 25 (90846), T,Th 8:30AM-9:45AM, Votey 105
RECITATION FOR BOTH CLASSES: T 6:00-8:00 PM, Votey 105; LABS (CHEM 23 only), Discovery W211/213.

GENERAL INFORMATION

Instructor: Dr. David Pratt **Email**: dpratt1@uvm.edu

Office: W-312C Discovery Hall; office hours (see below) in 3rd Floor Lobby of Discovery.

Office Hours: Mon. 9:00 AM – Noon; Tues. & Thurs. 10:00 AM – Noon.

Class Website: https://Bb.uvm.edu

Lab Videos: http://www.uvm.edu/~chem/?Page=23Videos.html

Lecture: The lecture will provide an overview of all material to be discussed in this course. Key topics include the chemical world, measurement and problem solving, matter and energy, the chemistry of the elements and their compounds, and the concepts of chemical bonding, kinetics, and equilibrium. Brief introductions to the topics of organic chemistry, biochemistry, and nuclear chemistry will be included.

REQUIRED TEXTBOOKS

Text: "Introductory Chemistry", 6th edition, by Nivaldo J. Tro, sold at the UVM bookstore.

Mastering Chemistry: An on-line homework and tutorial system, also available at the bookstore.

Lab Manuals: "Chemistry 23 Experiments " is available at the class Blackboard site, free of charge. **(Not required for CHEM 25 students)**.

Scientific Calculator: A standard scientific calculator is a requirement for the exams.
Note: Graphing calculators are not allowed.

CLASS ACTIVITIES

Pre-lecture questions, lecture participation, homework, office hours, recitations, labs, and exams.

CLASS SCHEDULE

Date	Topic	Homework Due
August 28	The Chemical World (Chapter 1)	September 4 (#1)
August 30	Measurement and Problem Solving (2)	September 4 (#1)
September 4	Matter and Energy (3)	September 11 (#2)
September 6	Atoms and Elements (4)	September 11 (#2)
September 11, 13	Electrons in Atoms & The Periodic Table (9)	September 18 (#3)
September 18, 20	Chemical Bonding (10)	September 25 (#4)
September 25	**Review (AM) and Exam (1-4, 9, 10) (PM)**	---
September 27	Molecules and Compounds (5)	October 2 (#5)
October 2, 4	Chemical Composition (6)	October 9 (#6)
October 9, 11	Chemical Reactions (7)	October 16 (#7)
October 16, 18	Quantities in Chemical Reactions (8)	October 23 (#8)
October 23	**Review (AM) and Exam (5-8) (PM)**	---
October 25	Gases (11)	October 30 (#9)
Oct. 30, Nov. 1	Liquids, Solids, and Intermolecular Forces (10, 12)	November 6 (#10)
November 6	Solutions (13)	November 13 (#11)
November 8,13	Acids and Bases (14)	November 20 (#12)
November 15	Chemical Equilibrium (15)	November 27 (#13)
November 27	**Review (AM) and Exam (11-15) (PM)**	---
November 29	Oxidation and Reduction (16)	December 4 (#14)
December 4	Nuclear Chemistry (17)	December 6 (#15)
December 6	Organic and Biochemistry (18, 19).	---
???	**Final Exam (1-19)**	???

Problems: Weekly problem sets will be assigned and graded on Mastering. Solutions to the assigned problems will be discussed at office hours and in the evening recitations.

Review Sessions: Exam review sessions will be scheduled on the lecture day immediately preceding the exam to be given that evening.

Absences from exams: Students with legitimate excuses (*e.g.,* religious holidays, UVM-related conflicts, or family emergencies) will be permitted to take early exams providing they obtain permission from Dr. Pratt at least one week in advance of the scheduled exam time. Makeup exams, if permitted, will not be given *after* the scheduled exam time.

GRADING

Final grades will be based on the percentage of total available points received. The available points include 100 for pre-lecture and office hour participation, 100 for homework, 200 for lab (Chem 23 students only), 200 for hour exams (best 2 of 3), and 200 points for the final. The percentages of points needed to obtain a specific grade are as follows:

A (90% or higher), B (75%), C (60%), D (50%) and F (49% or lower).

MasteringChemistry®

Student Registration

In this course you will be using MasteringChemistry®, an online tutorial and homework program that accompanies your textbook. *If you have joined a MasteringChemistry course before and can still log in*:
Save time by following the guide for joining another course found under the STUDENT heading at www.masteringchemistry.com > *Tours & Training> Getting Started* instead of using the steps below.

What You Need:

- ✓ **A valid email address**
- ✓ **A student access code**
  (Comes in the Student Access Code Card/Kit that may have been packaged with your new textbook or that may be available separately in your school's bookstore. Otherwise, you can purchase access online at www.masteringchemistry.com.)
- ✓ **The ZIP or other postal code for your school: 05405**
- ✓ **A Course ID: PRATT2018**

1. Register

- Go to www.masteringchemistry.com and click **Students** under **Register**.
- To register using the student access code inside the MasteringChemistry Student Access Code Card/Kit, select **Yes, I have an access code**. Click **Continue**.

  –OR– *Purchase access online*: Select **No, I need to purchase access online now**. Select your textbook, whether you want access to the eText, and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. The purchase path includes registration, but the process is a bit different from the steps printed here.
- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under "Do you have a Pearson Education account?" Continue to give the requested information until you complete the process. The **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records. You can either click **Log In Now** or return to www.masteringchemistry.com later.

2. Log In

- Go to www.masteringchemistry.com.
- Enter your Login Name and Password that you specified during registration and click **Log In**.

3. Join Your Instructor's Online Course and/or Open Self-Study Resources

Upon first login, you'll be asked to do one or more of the following:

- **Join a Course** by entering the **MasteringChemistry Course ID** provided by your instructor. If you don't have a Course ID now, you can return to join the MasteringChemistry course later. When you join a course, you may also be asked for a Student ID (follow on-screen instructions).
- **Explore the Study Area** or **Launch Your eText**, if these resources are available for your textbook.

To Access MasteringChemistry Again Later

Simply go to www.masteringchemistry.com, enter your Login Name and Password, and click **Log In**.

After you have joined a course: You can open any assignments from the **Assignments Due Soon** area or from the **Assignments** page. For self-study, click **eText** or **Study Area**, if these options are available.

Support

Access Customer Support at http://www.masteringchemistry.com/support, where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Registration Tips & Tricks video
- Additional contact information for Customer Support, including Live Chat

LABORATORY

Time and Room: Labs begin on September 11. See your class course schedule regarding your assignments. Chem 23 labs are located in Rooms W211 and W213 Discovery.

Attendance: Students must attend the lab section to which they are assigned. Official documentation of sickness or family crisis is required if a lab is missed. **If more than 2 labs are missed, this results in a failure for the course.** In order to take a lab at a time other than your assigned time, you **must** obtain the permission of the TA and instructor, at least one week in advance of the scheduled time.

Breakage Card: A breakage card ($40.00) must be purchased from the first floor stockroom, W-210/212 Discovery, prior to your first lab. The $40.00 is refundable, and if you are careful you should get most of it back. Remember, you must have it with you to be admitted into lab.

Safety Eyewear: OSHA approved safety glasses or goggles must be worn by everyone once any experimentation has started in any area of a lab room. Safety eyewear can be purchased at the UVM bookstore.

Foot Wear: Only shoes that cover the toes are permitted in the lab. Sandals and open-toed shoes are not permitted.

Lab Notebook: A bound notebook is required for recording lab data.

ACADEMIC INTEGRITY

Each student is expected to be familiar with the UVM Code of Academic Integrity, which may be found at http://www.uvm.edu/policies/student/acadintegrity.pdf The principal objective of this code is to promote an intellectual climate that is consistent with and promotes the goals of a higher education. Offenses against this code in the lectures, labs, and/or exams, and on homework, will be deemed serious and will be reported to the Center for Student Ethics & Standards for further investigation. These offenses include copying homework, plagiarism, sharing results with other students in the lab, falsifying lab reports, and cheating on exams. If you have any concerns that a standard in this code may have been violated, you are expected to report it to Dr. Pratt or to Dr. Cardillo immediately.

CHEMISTRY 23 LABORATORY SCHEDULE SPRING 2016.

Weeks	Dates	Labs	Work Due
1, 2	Mon Aug 27 - Fri Sept 7	**No Labs** Purchase your Breakage Card and Safety Glasses; Review the Online Safety Presentation and complete the Safety Quiz **BEFORE** your first lab.	
3	Mon Sept 10 - Fri Sept 14	Safety Quiz Due, Laboratory **Check-In**, & **Experiment 1**: Determination of the Densities of Common Substances	Safety Quiz
4	Mon Sept 17 – Fri Sept 21	**Experiment 2**: Determination of Heat Capacity Using Calorimetry	Exp 1 Lab Report Exp 2 Pre-lab Exp 2 Quiz
5	Mon Sept 24 Fri Sept 28	**Experiment 3**: Qualitative Analysis	Exp 2 Lab Report Exp 3 Pre-lab Exp 3 Quiz
6	Mon Oct 1 - Fri Oct 5	**Experiment 4:** Synthesis of the Ionic Compound Alum from Aluminum Metal	Exp 3 Lab Report Exp 4 Pre-lab Exp 4 Quiz
7	Mon Oct 8 – Fri Oct 12	**No Labs** (Fall recess on Monday)	
8	Mon Oct 15 – Fri Oct 19	**Experiment 5:** Determination of a Compound's Empirical Formula	Exp 4 Lab Report Exp 5 Pre-lab Exp 5 Quiz
9	Mon Oct 22 – Fri Oct 26	**Experiment 6**: Reaction Stoichiometry and Equation Balancing	Exp 5 Lab Report Exp 6 Pre-lab Exp 6 Quiz
10	Mon Oct 29 – Fri Nov 2	**Experiment 7**: Determination of Limiting Reactant	Exp 6 Lab Report Exp 7 Pre-lab Exp 7 Quiz
11	Mon Nov 5 – Fri Nov 9	**Experiment 8:** : Determination of Acid Content in Pickle Juice Using Titration	Exp 7 Lab Report Exp 8 Pre-lab Exp 8 Quiz
12	Mon Nov 12 – Fri Nov 16	**Experiment 9**: Determination of Limestone Content in Soil Using the Ideal Gas Law	Exp 8 Lab Report Exp 9 Pre-lab Exp 9 Quiz
13	Mon Nov 19 – Fri Nov 23	**No Labs** (Thanksgiving Recess)	
14	Mon Nov 26 – Fri Nov 30	**Experiment 10**: Acid-Base Equilibria and Buffers	Exp 9 Lab Report Exp 10 Pre-lab Exp 10 Quiz
15	Mon Dec 3 – Fri Dec 7	Laboratory **Clean-up** & Laboratory **Check-Out** **Extra Credit Lab???** See instructor! All work must be handed in at your last lab.	Exp 10 Lab Report